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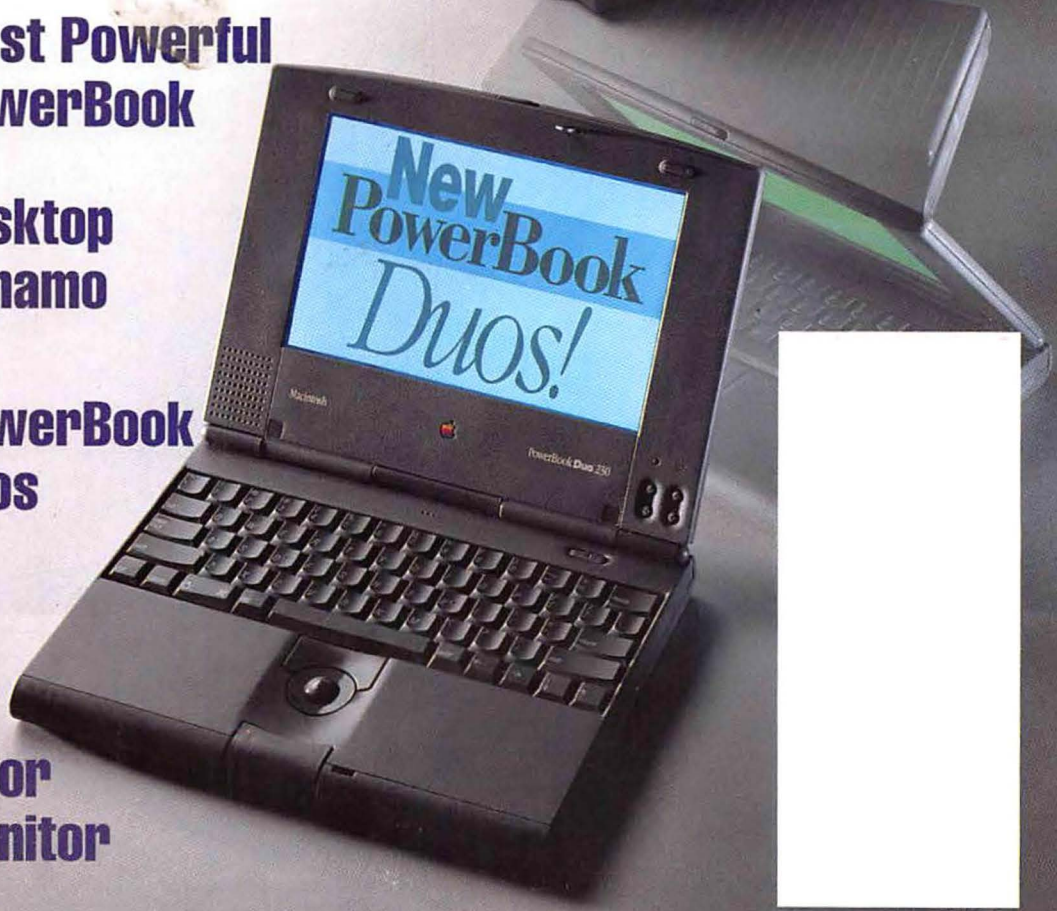
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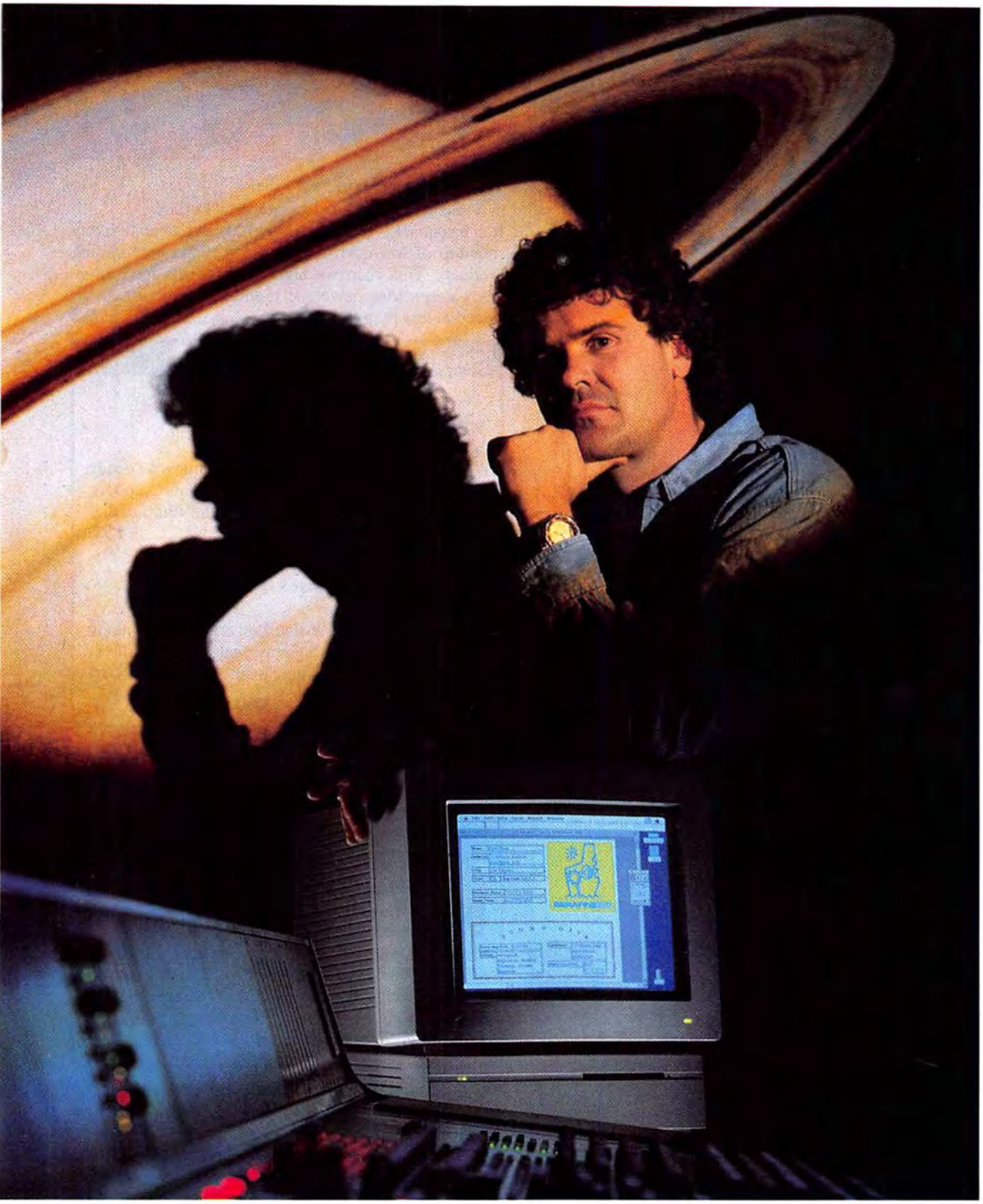
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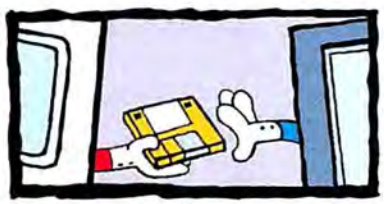
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On the cover: Apple's new Duo System is just part of the latest wave of options in the Macintosh family.

Cover photo by Steven Underwood



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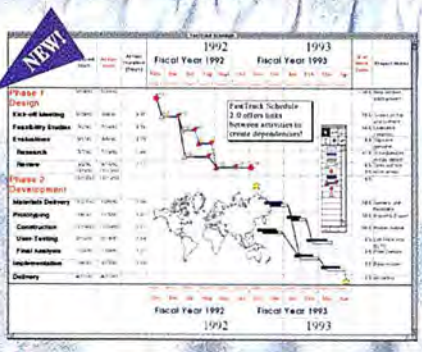
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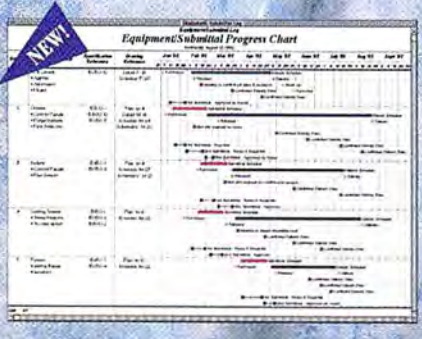




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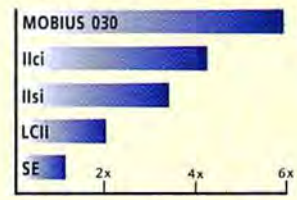




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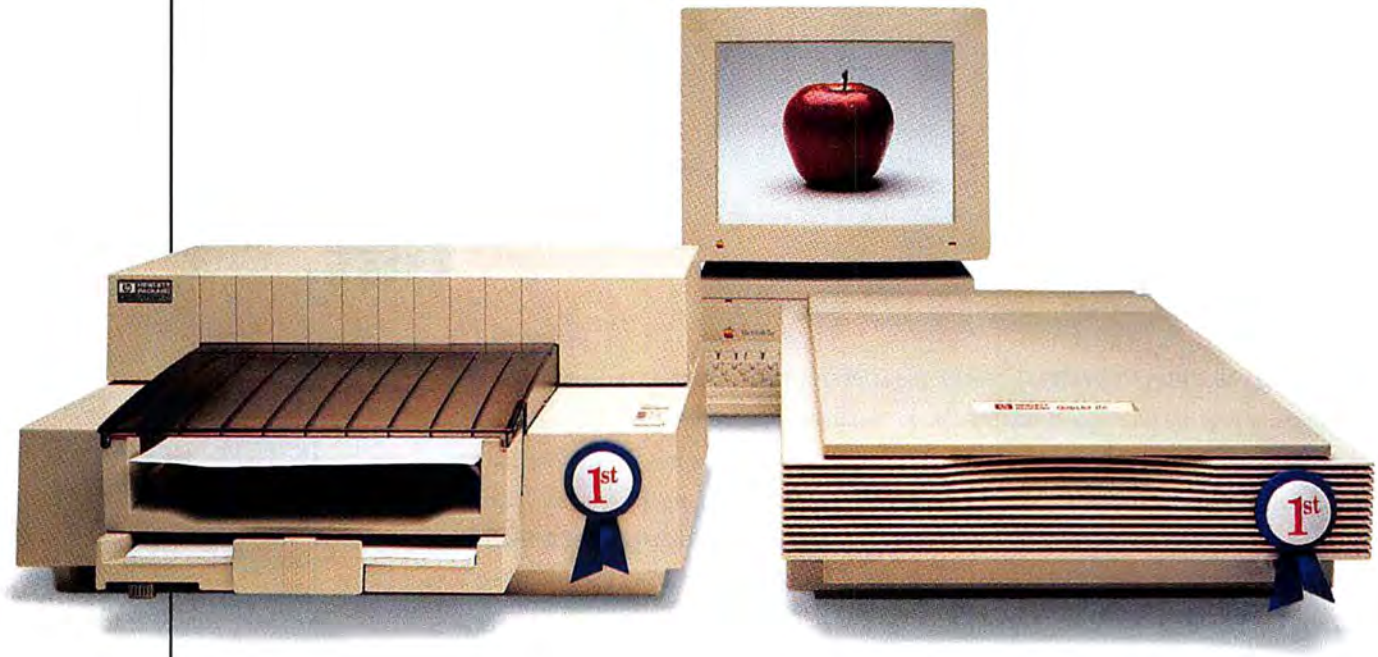
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Battery Conservation	Yes	—
Thick Cursor & Insertion Point Preference	Yes	—
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Footnotes	Yes	Yes
Custom Keyboard Equivalents	Yes	—
Unlimited Undos	Yes	—
Noncontiguous Selection	Yes	—
Rectangular (Vertical) Selection	Yes	—
File Management & Retrieval System	Yes	—
Graphics Layer	Yes	—
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Words	135,000	135,000
User Dictionary	Yes	Yes
Skip/Replace All	Yes	—
Auto Hyphenation	Yes	—
Thesaurus Words	1.4 Million	1.4 Million
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About

MacUser

Covert Operations

For reasons understood best by its competitors, Apple is pretty tight with information about unannounced products. You might think that this would make it hard to write a story to coincide with the release of a new product, and you'd be right. It's an intricate dance of swearing secrecy, writing rapidly, and dealing with stressful schedules.

Trying to perform lab tests on the products under these conditions is like trying to make an omelet while bungee jumping. And as they say, if you want to make an omelet, you've got to break a few eggs. The trick is not to break anything else.



MacUser **project leader Mark Bieler spearheaded the team of technicians charged with getting the inside story on one of the largest releases of new Apple products ever.**

MacUser project leader Mark Bieler knows just how many eggs were broken in preparing this month's menu of sneak previews of all the latest new products from Apple. And despite a demanding testing timetable, he managed to persevere with his spirit unbroken.

"Usually," says Mark, "we know months in advance exactly what products we're going to be testing in the lab. We read everything we can get our hands on. Then we start conceptualizing tests and actually conducting some preliminary ones to determine whether those tests make sense."

That's under normal circumstances. Nothing about our testing of the Macintosh IIvx, the PowerBook 160 and 180, the PowerBook Duo 210 and 230, and the revolutionary new Duo Dock for this issue could be considered normal circumstances.

Every lab evaluation has its own set of complications, from deciding on the appropriate tests to setting up comparable configurations. But this month's complications were in a class by themselves.

For example, the new products required System 7.1, which was itself in development, making it a moving target as Apple kept turning out new beta versions. Because the new system software required that we update all of our benchmark tests, trying to pin down the performance of these new products was something like trying to change a flat tire on a moving car.

Make that a speeding locomotive.

But for Mark, an inveterate crossword-puzzle solver, tackling such challenges is like solving a particularly vexing puzzle. "The challenge is in discovering what's really important about products. I like figuring out how to sift out information that's both valuable and reliable," he says.

The payoff is the ability to put product claims to a reality test, as you'll see in the sneak previews, which start on page 126 of this issue.

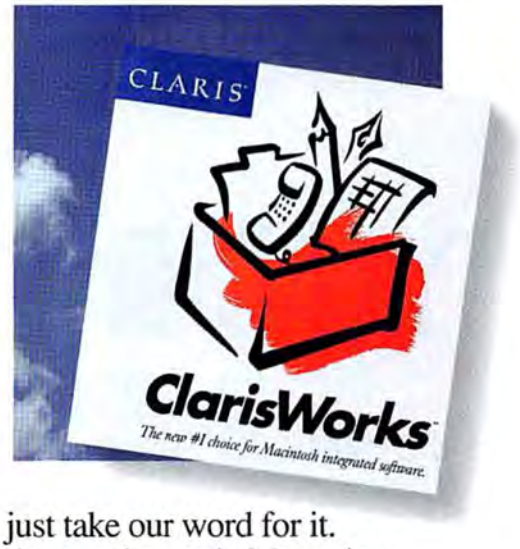
— Nancy Groth

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CIRCLE 61 ON READER SERVICE CARD.

LETTERS



From Quadeville, Ontario, Canada, Gunnar Van Vliet writes that he was impressed to read of the multiple talents of contributing editor Andy Ihnatko ("About MacUser," September '92, page 10), particularly his talent for transforming 512K Macs into fully functioning fish tanks. "Then I thought: Mr. Ihnatko took a perfectly good Mac and turned it into a fish tank? Could you please tell him that there are many students who would gladly accept an old 512K — less a fish tank." We tried calling Andy to deliver your request, but it seems his phone was off the hook, line, and sinker.



Write to Letters to the Editor, c/o *MacUser*, 950 Tower Lane, 18th Floor, Foster City, CA 94404, or post your letter on the MacUser Forum of ZiffNet/Mac, our on-line service.



All letters become the property of *MacUser*, and we reserve the right to edit any letters we print. Please include a return address and a daytime phone number.

Words with Himself

I wanted to be the first to log in to report a major gaffe in Andy Ihnatko's October '92 column (page 29). As an example of a software upgrade that can't save in a native format compatible with older versions of the same program, the column cited Word 5.0, which seems to have no export option for Word 4. Simple reason for this: Word 5's native format *is* Word 4 format.

Andy Ihnatko
via ZiffNet/Mac

True, true, but This Is Not Your Father's Word 4.0 Document. Some programs (PageMaker, for example) tend to run screaming into the night when they try to open a Word 4 doc saved from Word 5.0, so I still say that Microsoft should've put in an export command. Nonetheless, as penance, I hereby sentence myself to an evening watching Raiders of the Lost Ark *and* Indiana Jones and the Temple of Doom, *both of which were just rereleased on laserdisc in new letter-boxed format with greatly improved sound. And just to make sure I've learned my lesson, I'll drink a six pack of ice-cold Dr. Pepper too. — AI*

More Words on Word

Although I usually enjoy your excellent magazine, your article on word processors ("The Right Word Processor," September '92, page 100) left me exasperated. The article failed to mention several important factors concerning WriteNow 3.0. First, you state that style sheets are "probably the most critical feature for successfully writing long documents" and that WriteNow has the "most-clearly designed and functional style sheets." Yet you do not recommend it at all for long documents.

You give WriteNow a poor rating for its spelling checker, even though its dictionary is larger than those of Microsoft Word and MacWrite II. You also give WriteNow's thesaurus a poor rating, even though it is the most complete thesaurus available on any of

Dear Mr. Sculley . . .

In August we asked you, **"How much is fair to pay for an upgrade?"** And in September we asked, **"What products are gathering dust on your shelves, and why?"** Although we received laundry lists in response to both questions, James P. Cobb, of Washington Mills, New York, had one answer for both questions: System 7. "Just because System 7 is newer than System 6 does not mean that it is better. Apple could not pay me enough to use the current System 7. If I were *required* to use System 7, I would seriously consider switching to IBM." Mr. Cobb suspects that although reviewers "have the latest version of each piece of software, the typical Mac user rarely has a 'clean' hard disk stripped of unneeded applications, cdevs, INITs, and DAs.

"Although System 7 may perform OK on fully up-to-date machines with all software completely upgraded, typical Mac users do not receive free updates to all their commercial software. How many Mac users assume that their problems with System 7 are unique and their own fault, scratching their head trying to figure out what file is causing their headaches, never realizing that perhaps a dozen or more pieces of software are at fault?

"The cost of upgrading all the software and hardware of our Macs while experiencing a noticeable decrease in productivity due to crashes and System 7 overhead is just too great."

Another popular candidate for shelfware status was HyperCard. Says Samuel Zelman, M.D., of Topeka, Kansas, "It's big, bulky, a real memory hog, clumsy, and slow." If that weren't enough to condemn HyperCard to a life sentence on Dr. Zelman's shelf, he adds that HyperCard is "Apple's Big White Elephant. Although it can do many things, each of its capabilities is matched by those of leaner programs that operate smoother and faster. Some programs require it for help and demo routines, so it still sits on my hard disk, taking up space that could find better use."

But a few readers haven't given up on their shelfware yet. Bud Willner, of Vienna, Virginia, continues to carry a torch for FullWrite Professional. "Even though Word 5.0 has a lot of bells and whistles, none of the current word processors can hold a bit to FullWrite. Borland has forced FullWrite off the market, but a good vendor should have picked it up and competed with Word straight up."

Borland isn't the only company that's been known to ignore its installed base; Apple too is notoriously mute when it comes to talking to its customers. Which prompts this month's question:

Speak Up:

What topics do you need to hear more about from Apple?

Send your thoughts to Dear Mr. Sculley, c/o MacUser, *950 Tower Lane, 18th Floor, Foster City, CA 94404.*

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CIRCLE 21 ON READER SERVICE CARD.

LETTERS

the word processors you reviewed; Webster's Collegiate Thesaurus, which is shipped as part of the WordMaster DA with WriteNow, has 1,400,000 words — nearly seven times as many as Word 5's thesaurus (which received a better rating). Also, you only casually mention the speed and modest hardware requirements of T/Maker's word processor versus those of Word and that WriteNow requires only 490K to run swiftly whereas Word requires 2,048K and runs like molasses in winter.

In your conclusion, you recommend Microsoft Word 5 as a primary word processor, even though the street price is $319, it requires an 830-page manual, and it "is still in need of an interface overhaul." T/Maker's WriteNow 3.0 costs $135 at my local dealer and includes a free copy of Grammatik Mac, a $99 value. WriteNow's intuitive interface, excellent speed, ease of use, and powerful style sheets earn better than a three-mouse rating.

David Shaw
Marietta, GA

Excel-lent!!! (Not!)

Are you kidding? I read with astonishment your review of Microsoft Excel 4.0 (September '92, page 56). Even more amazing was your award of five mice to this kludge. Are we talking about the same program?

Here is the Microsoft Excel 4.0 *I* received: First, it is an astounding space hog. It occupies an incredible *9 megabytes* of disk terrain. If, as your reviewer asserts, dilettantes are going to love the program, they'd better be dilettantes with lots of money to spend on big hard drives.

Then there's the issue of speed, or rather the entire lack of it. Have you tried to access any of Excel's fancy new features? Plan some vacation time first. This program is as slow as it is fat.

I bought Excel's 4.0 upgrade, but I don't use it. Microsoft — influenced, I suppose, by the heedless disregard for efficiency shown by users of its Windows products — has taken one giant step backward.

Steven E. MacIntyre
New York, NY

I suppose the folks at Microsoft will now congratulate themselves instead of correcting Excel's problems, such as its poor implementation of the Clipboard.

Excel operates in different "modes." When a user has copied a selection in the worksheet, Excel is in a Clipboard mode, which is indicated by the following message in the status bar: "Select destination and press Enter or choose Paste." You can use the Clipboard only when Excel is in this mode. Once you return to Ready mode, the Clipboard is cleared automatically. If you wish to paste later, you must copy the selection again.

Another problem occurs when you use the Clipboard to move information between Excel and other applications. When you cut from a worksheet, Excel does not remove the selection until you've pasted it somewhere else. If you paste into another application's document, however, the information will never be removed from the worksheet.

Excel users, please ask Microsoft to fix these problems (call its "wish list" line at 206-936-9474). Once corrected, Excel might really earn that five-mouse rating.

Albero I. Roca
Madison, WI

The Ultimate Buyer's Market

I use the recommendations from your MiniFinders to buy products. It would be very helpful if you would print a complete list with all the products.

Bruce Watson
Willowick, OH

Watch your mailbox (or your newsstand) for MacUser's Ultimate Buying Guide, *a complete directory of our reviews of all currently available Mac hardware and software products. It also includes reference information on all Mac CPUs (including the just-announced models) and handy checklists for buying peripherals such as printers, hard drives, and monitors. — JZ*

The Power to Flunk Your Test

In Bob LeVitus' power-user test (September '92, page 263), many of the questions are unfairly based on what equipment the person is using. For instance, whether someone is a power user or not shouldn't depend on the size of that user's hard drive (question 5).

Someone who is using only a Mac Plus probably wouldn't have System 7 running or have tons of INITs loaded (questions 1 and 8). In my case, my parents have priorities other than buying me expensive computer equipment, and therefore I can be considered only a

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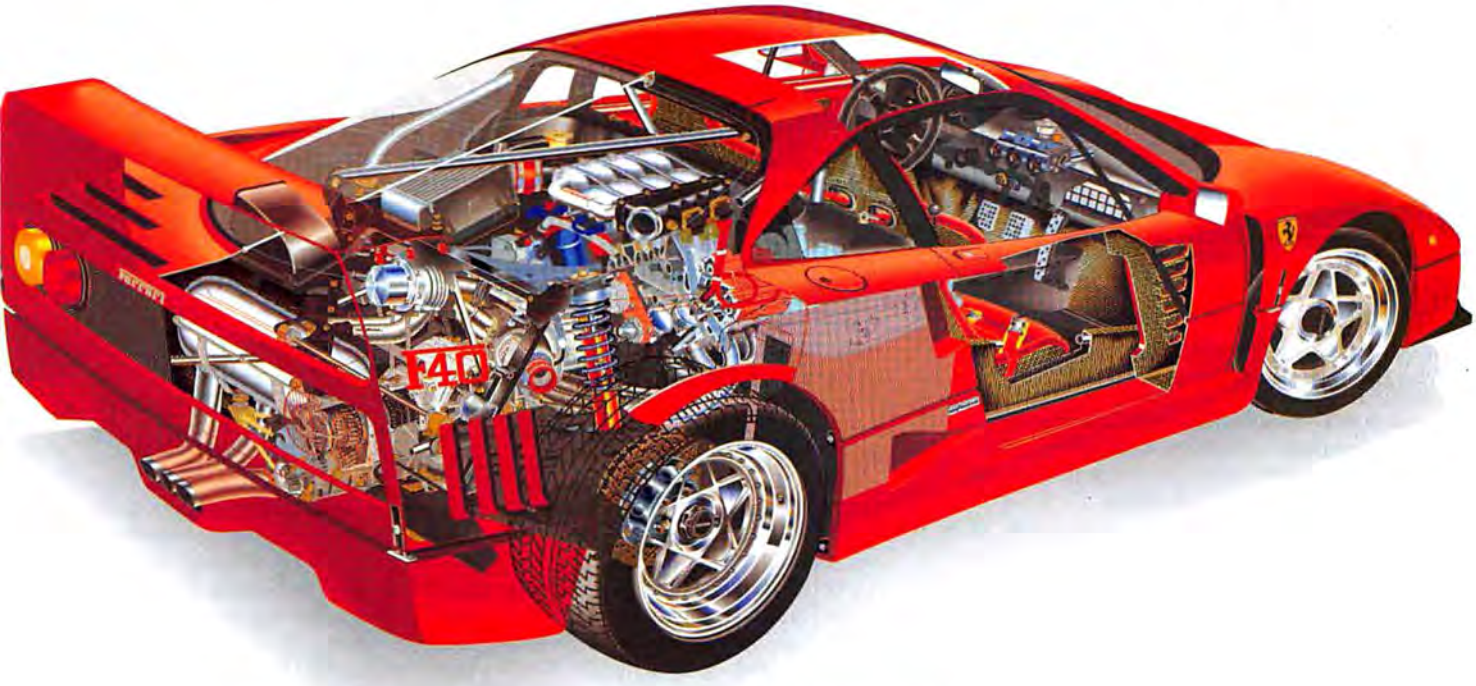
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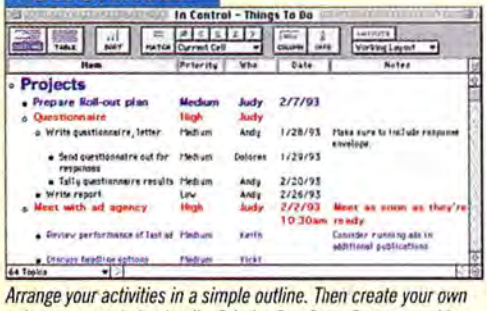
CIRCLE 186 ON READER SERVICE CARD.

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– MACWORLD

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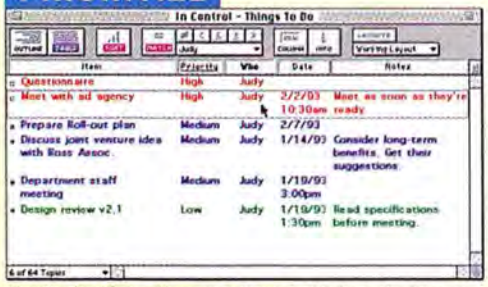
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CIRCLE 209 ON READER SERVICE CARD.

LETTERS

regular power user as opposed to an Exalted Grand Pooh-bah Power User. Go figure.

Matthew Hutson
Groton, MA

Searching for Shareware

I enjoyed "The MacUser Shareware Awards" in the September issue (page 152). Some of us don't have modems yet, however, and you did not include information about obtaining these programs in any way except through ZiffNet/Mac.

Could you provide information on how to get the programs you mentioned. I bet I'm not the only modemless person who would be interested.

Faith Cormier
Fredericton, NB
Canada

You can find vast shareware libraries at your local Mac user group (call 800-538-9696, ext. 500, to find the group nearest you). If there isn't one in your community, the Boston Computer Society (617-252-0600) and Berkeley Mac User's Group (510-549-2684) are good bets. — JZ

Rating and Raving

Your article entitled "Inkjet Printers" (September '92, page 198) left me extremely annoyed. With the release of the StyleWriter's new driver, printing can take place in the background. Your computer does not have to lie idle for too long.

And although speed is certainly one factor in printer selection, it should not be the foremost consideration in rating printers. The fact remains that the StyleWriter's print quality is excellent — far crisper than that of the DeskWriter. Wouldn't most people opt for superior output (at $50 to $200 cheaper than the competition's), even if it did take slightly more time? For its superior output alone, the StyleWriter deserves more mice.

Brian Raineri
Paterson, NJ

Although I was pleased that the NewGen TurboPS/400p received an honorable mention in your personal-PostScript-printer lab report (September '92, page 160), I was surprised that NewGen's TurboPS/300p received such a poor rating.

I was disappointed that you placed such an emphasis on print speed over resolution. Also, I do not believe that you made it clear that the TurboPS/400p has 400-x-400-dpi resolution *plus* Image Enhancement Technology. It was also unfortunate that you did not inform your readers that you can add additional RAM to enable our "2-page buffering," which would increase your multipage print speed by close to 30 percent at very low cost.

Finally, our 70-sheet paper capacity is not restricted to lighter paper stock; our printers handle 70 sheets of 24-pound paper.

Scott McClure
Product Marketing Manager
NewGen Systems Corp.
Fountain Valley, CA

Our mouse ratings and "Bottom Line" evaluations reflect how we feel most users weigh the merits of various factors such as speed, output quality, technical support, reliability, and features. We include individual test results and feature listings so that individual users can look beyond the mice to make their decisions based on the factors that are most important to them. — JZ

Personal Thanks

A big "thank you" to Steven Bobker for his timely article "Very Personal Networks" (October '92, page 245). I have a PowerBook 170 and an LC II and had been stewing for the last few months, wondering how I could hook them together. I was contemplating buying a LAN and then figuring out how to use it, but this article showed me how to do what I needed to do in less than five minutes. It made my many years of subscription fees all worth it.

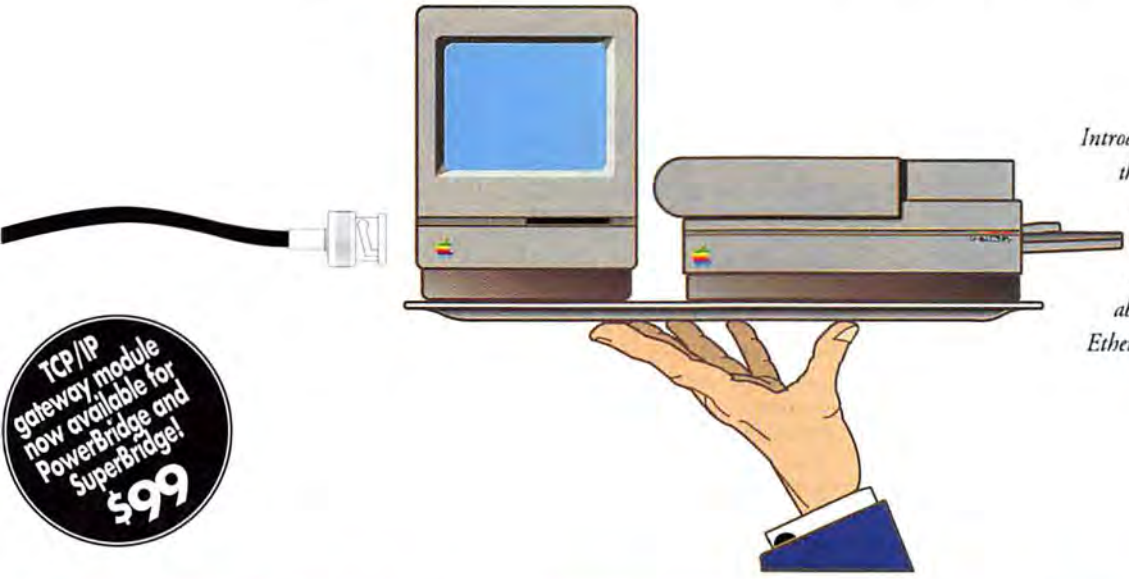
Bobbi Geyer
Benicia, CA

Let the Games Continue

We here at Maxis fully agree with Steven Bobker's position that copy protection penalizes the innocent ("The Game's Afoot," September '92, page 247) and have made it our policy to eliminate all intrusive copy protection from our products. We are willing to risk some lost revenue to the pirates in order to make our products more enjoyable to legitimate owners. In the short term, the customer benefits; in the long term, the industry benefits.

By the way, typing FUND in SimCity puts more money into the City's coffers

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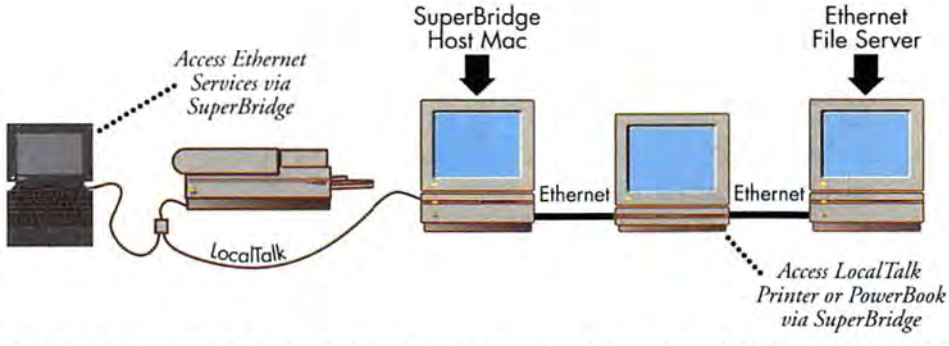
PowerBridge allows any one LocalTalk device, such as a PowerBook, printer or network modem, to be on Ethernet without any additional Ethernet hardware. Imagine being able to access all Ethernet services, including file and mail servers, from your PowerBook. Or allow all Ethernet users to access the LocalTalk printer. See the diagram below for more details. **$149.**

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SuperBridge is identical to PowerBridge except that it allows up to 5 LocalTalk devices to be on Ethernet without any additional Ethernet hardware. These 5 LocalTalk devices can be Macs, printers, network modems, etc. In fact, the 5 LocalTalk devices can 'see' each other as well as being able to access all Ethernet services. See the diagram below for more details. **$249.**



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CIRCLE 62 ON READER SERVICE CARD.

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CIRCLE 44 ON READER SERVICE CARD.

and does nothing to the tax rate. When your city is going nowhere and you want to really give the mayor a challenge, save it and then type NUKE; you can guess what happens if you are running version 1.3 or later.

Joe Scirica
Vice President Product Development
Maxis
Orinda, CA

Style à la Dvorak

In his August *MacUser* column, "Substance Abuse" (page 342), John Dvorak seems to have completely missed the point of my article "Is Technology Killing Creativity" (Seybold's *Digital Media,* April '92).

My article suggested that some creative individuals become less productive once they've been introduced to computers. Worrying about TIFF-file incompatibilities does not seem to enhance the creative process.

Dvorak seems to have interpreted my article as being "antistyle." Nothing could be further from the truth. Why would I write an article suggesting that too much technology may kill creativity if I am not concerned about style? Nowhere in my article did I suggest that the Macintosh produces "only pretty documents devoid of content." In fact, my article has nothing to do with the choice of computer system.

Dvorak claims that "a Mac-produced document says that you care." Excuse me? You mean that all I have to do is choose the right computer system and microprocessor and I will automatically communicate a caring attitude? Perhaps I should buy two Macs and run for president. Computers are just tools. Doesn't what you have to say count for more than the tool you use to say it?

Dr. Rudolph Burger
Savitar, Inc.
San Francisco, CA

In John Dvorak's August column, Dvorak tells us that data without style can bore you stiff. I think he's gone one step further and shown to us that data *with* style can also bore you stiff.

Joe A. Dale
Valley Mills, TX

Giving a Fig About Newton

It's a sleek, sexy, affordable, high-tech hand-held computer that can recognize handwritten printed input and convert it to typewritten text; has the intelligence to automate your phone book and scheduling tasks like nothing before it; communicates via wireless infrared signals to upload and download to PC or Mac networks; and will connect to cellular networks for automatic retrieval of information such as news, stock quotes, and weather.

And that's just the beginning for the Newton ("I Sack Newton!" September '92, page 394), because its slot for PCMCIA cards will allow it to expand into abilities that are limited only by the imagination.

Of course, not everyone has that kind of imagination. Take John Dvorak (please!). He thinks that the Newton will be a total flop. Why? Because it might break if you drop it — the same reason all those other hand-held devices — such as the Walkman, portable CD players, and cordless phones — were failures.

As for the Newton's being too expensive at $995, maybe Dvorak doesn't get paid very much for what he writes. On second thought, after reading his column on the Newton, I think that anything would be too much.

Richard Klein
Paramus, NJ

Clarifications

The correct toll-free number for QMS (New on the Menu, October '92, page 48) is 800-523-2696.

Contrary to what was stated in our October issue (New on the Menu, page 50), Apple will not replace motherboards of PowerBook 140s returned for service with PowerBook 145 motherboards.

In the chart on page 107 of "The Right Word Processor" (September '92), the evaluations of the file-importing capabilities of Word and WriteNow were reversed; Word should have received three diamonds, and WriteNow should have received none.

In the October '92 issue (Tip Sheet, page 277), an incorrect price was listed for the Airline Seating Guide. The subscription is $39.95. Also, the Guide does not include the amount of under-seat room.

In "Plugging In to Photoshop" (September '92, page 203), 21st Century Media, of Seattle (800-528-3472), should have been cited as the source of the stock-photo images used to illustrate the article.

Multimedia Performer.



Chinon's New CD-ROM Drive.

Multimedia is hot—and here's a CD-ROM drive that can take the heat. Chinon drives have a reputation for rugged construction and rock-solid reliability. Plus the 435 series drives are fully MPC and QuickTime compatible, with a 64KB data buffer and a sustained data transfer rate of 150KB per second. This means you can run all your multimedia applications without missing a beat.

These drives have a small footprint for easy portability, direct RCA audio outputs, and a headphone jack with full-range volume control. And our standard SCSI interface makes connection to your computer a snap.

Chinon's external drives are available for both IBM-compatible and Macintosh computers, with a half-height internal version for IBM compatibles.

Best of all, Chinon quality in a CD-ROM drive costs less than many comparable drives, not more. So call today for the reseller nearest you—and put a multimedia performer in your corner.

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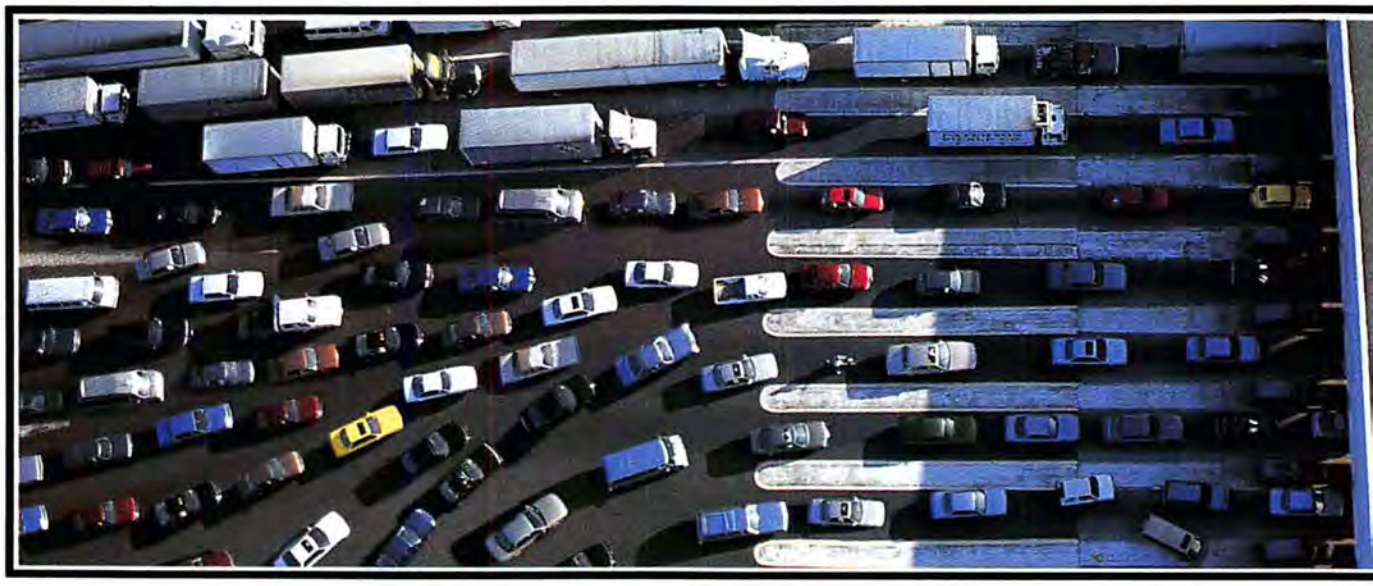
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CIRCLE 135 ON READER SERVICE CARD.

THE REASON YOUR LASER TO PRINT, AS EXPLAINED BY BRIDGE TOLL BOOTH



You fight traffic to get to work. You fight traffic to get home from work. The last thing in the world you should have to do is fight traffic at work. Yet, if you're like a lot of Mac users, you do it every day.

Each time you hit the print key, you send thousands of tiny information bits scurrying through the wires. Often they arrive at the printer at the same time as someone else's tiny information bits, resulting in a situation not unlike the one you see here. Leaving the controller to somehow make sense of it all.

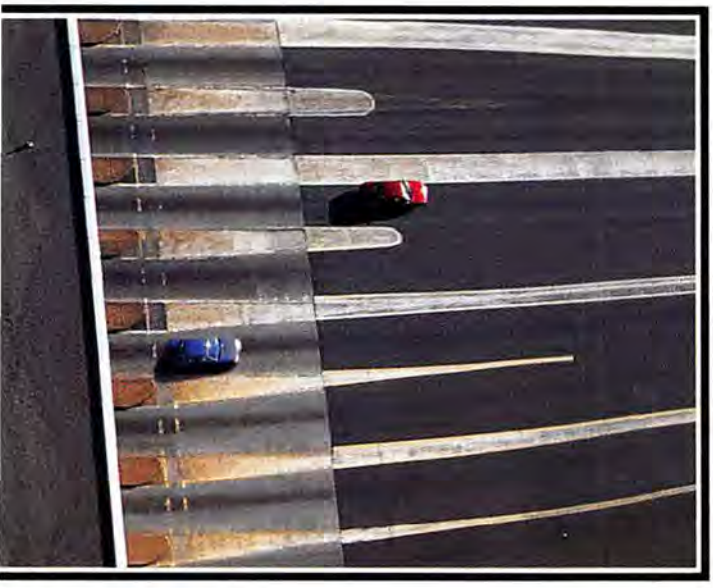
It is this exact scenario that inspired us to build the new COMPAQ PAGEMARQ Laser Printers.

Using a high-throughput controller developed by Compaq, they process complex files in a fraction of the time it takes ordinary machines, allowing you to print as fast as 15 and 20 pages per minute. Which means, quite simply, your printer could actually end up waiting for you, instead of the other way around.

These new laser printers

*This service, provided by contract service providers, specific to hardware products and may not be available in certain geographic locations. Consult the Compaq Customer Support Center for further details. © 1992 Compaq Computer Corporation. All Rights Reserved. COMPAQ registered U.S. Patent and Trademark Office. PAGEMARQ and

PRINTER TAKES SO LONG THE GEORGE WASHINGTON AT RUSH HOUR.



also come standard with 35 PostScript fonts. And if that isn't enough, you can expand your type library even further simply by adding 1- and 2-MB Programmable Font Modules. Or you can cram an entire typeshop into your laser printer by adding an internal 60-MB Hard Drive. Which lets you store up to 1,500 fonts, avoiding the hassle of continually having to download from your computer.

In addition, there's a new 800 x 400 COMPAQ High-Resolution Mode that delivers razor-sharp type and graphics as well as smooth, high-definition gray scales.

Another feature you'll appreciate is an 11" by 17" page-handling capacity, which lets you print oversized layouts in a single pass.

And with the added benefit of three standard TwinTrays the PAGEMARQ 20 Laser Printer allows you to print up to 1,500 sheets without having to reload.

Of course, these printers are backed by CompaqCare, our comprehensive service and support program. Which includes a one-year limited warranty and on-site* service in both the U.S. and Canada. All at no charge.

For more information, simply call 1-800-345-1518 in the United States, or call 1-800-263-5868 in Canada.

And learn about a new line of printers that can eliminate your bottlenecking problems forever.

Or at least until 5 o'clock.



PAGEMARQ Printers can handle various page sizes up to 11" by 17". And with three standard TwinTrays, they can hold up to 1,500 sheets of paper–more than any other desktop printer.



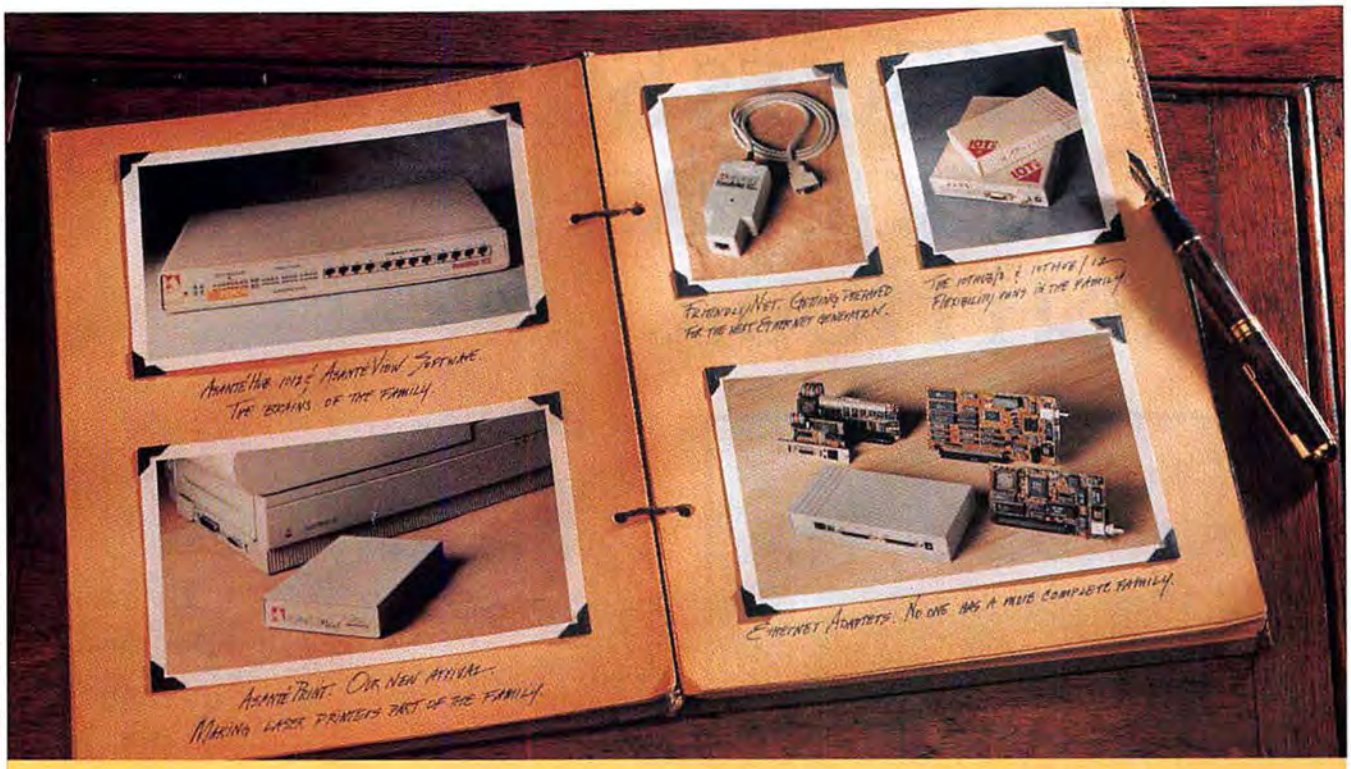
Add an Internal FAX Modem and you can practically turn your Macintosh into a personal fax machine. One that will send and receive sharp, clear PostScript quality faxes in any size up to 11" by 17".

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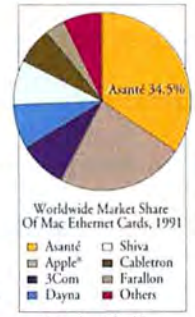
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MW EDITORS' CHOICE

In addition, the Asanté family features a full line of non-intelligent 10BaseT hubs with 8 or 12 ports. And the widest range of award-winning cards providing Ethernet connectivity for every Macintosh platform—including solutions that will let you connect to future generations of Ethernet.

A Fully-Integrated Family.

When you get the Asanté Ethernet family together, you can be sure of seamless networking. That's why we're #1 in the eyes of independent industry analysts, and with LAN managers everywhere.



Source: International Data Corporation, June 1992

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CIRCLE 81 ON READER SERVICE CARD.

JON ZILBER

A Ghost of Macintosh Past



The Ghost of Macintosh Past comes to haunt Ebenezer — Ebenezer Sculley, that is — in a cacophonous Christmas Carol for the Macintosh.

Don't be afraid, Ebenezer Sculley. It's just me, your former partner Steve Jobs. But for the purposes of this extended parable, you can call me The Ghost of Macintosh Past.

No, Ebenezer, I'm not just an undigested bit of humble pie. Yes, it's really me, the specter of your past, back to haunt and taunt you for your sins. But there's still a chance for your redemption — if you heed my words closely.

We'll begin your haunting with a visit to the gallery of abandoned technologies. I'm sure you recognize the exhibits on display: Over there is an eight-track tape player. It still runs fine, but the only tapes you can find for it are *Bobby Sherman's Greatest Hits* and *The Schmenge Brothers' Polka Favorites.*

Why am I making you listen to this? See that empty space over there — between the Wankel rotary engine and the Wang word processor? Well, if you don't change your ways, that space is reserved for . . . yes . . . for the Macintosh. Our friendly little Macintosh. *My* Macintosh.

What's that noise? Sorry, it's just the incessant rattle of my chains.

Oh, I know you're on a roll, Ebenezer Sculley. Sure, you went from less-than-zero to first place in the notebook-computer market with your PowerBooks in 1992. And, yes, I *am* impressed with all these new machines — the Duo Docks, the new gray-scale PowerBooks, and even those silly little Performas.

But you've forgotten your roots and to whom and what you owe that success. Your success rests on a delicate foundation that I worked hard to build — the hundreds of independent software vendors (ISVs) who make the Macintosh more than a cute-but-expensive paperweight. The ISVs are the innovators who create the applications that drive your market.

And frankly, Ebenezer, when it comes to those ISVs, you've gotten greedy. You want the whole pie for yourself. And even worse, you've become downright Scrooge-like, the way you reluctantly parcel out vital information about what you're really up to.

Not-So-Great Performa-nces

What do I mean, you ask? Take those new Performa Macintoshes. The Performas aim to make buying a computer as simple as buying a refrigerator. See, you don't really *buy* a refrigerator — you *marry* it, until death do you part. (Hopefully, the refrigerator dies first — but not for a long time.) You don't come back a month later to buy new and better shelves; a higher grade of coolant; or a new souped-up, ultrabright light bulb.

So if the Performas succeed, the only winner will be Apple. Performa buyers won't be coming back to upgrade their software or try out competing applications — which is what it takes for the ISVs to survive.

You're not helping hardware makers either. You let other manufacturers pioneer the markets for hardware add-ins and peripherals such as RAM, hard drives, color monitors, and CD-ROM drives. But now you want to sell all your Macs out the door, fully loaded with Apple-labeled hardware.

Or you just flip-flop your strategy and try to build everything onto the motherboard. Last year, you let third-party developers test the waters when you left video output out of the first PowerBooks. But before those developers had any real chance to reap the benefits of their solutions, you waltzed right in and built video in to the new models, once you saw what a boo-boo you'd made.

All this wouldn't be so unforgivable — you're just giving the customers what they want, after all — if you'd only bothered to keep the developers posted on your *real* agenda.

Sticking with the Program

Every month or two, you unveil a supposedly crucial new element of the Mac architecture or operating system and foist it onto the developer community. You tell them, "If you want to play, you've got to be System 7-compatible; you've got to implement publish-and-subscribe, Apple events, and OCE." And the list goes on.

The ISVs dutifully nod and struggle to support all those technologies. But then you turn around and drop the ball. You don't evangelize those concepts to users in an aggressive and timely manner. And you don't stick to your guns long enough for the ISVs to recoup their investment in all the technologies you're touting.

Plenty of ISVs have seen their development efforts in supporting System 7 go down the tubes. Far too many Mac users are sticking with System 6, actually going out of their way to avoid System 7-savvy applications, which they fear might crash under System 6.

You launched Apple events with much hoopla and then let it flounder, leaving it to smaller companies such as Working Software to take the lead.

Even worse, you lead developers down the primrose path and then you slip off quietly into the sunset — until you emerge from the shadows with a surprise attack *against* them.

For years you let small ISVs figure out how to connect Macs to DOS machines. Once you finally caught on that access to DOS was a pretty smart idea, you bulldozed your way in. With everything from macros to Finder simplifiers to beautifying the desktop with colorful patterns, you've let other companies solve your problems — only to bully your way in later, with not so much as a "thank you very much" to trailblazers such as DataViz, CE Software, or Thought I Could.

Ebenezer, you need to take care of ISVs as if they were your children. You must listen to them, and you must talk to them honestly. Otherwise, the children will run away from home. They'll pull up stakes and move on to more-lucrative markets — such as crash-diet milk shakes or a series of limited-edition collectors' plates sporting your favorite dialog boxes and error messages. Or they'll start developing for . . . oops, sorry about the chains again . . . for Windows.

Develop a version of the Mac OS for Intel-based machines. Overnight, that would expand your market tenfold.

The Macintosh Yet to Come

Here's what I'd be doing (if you hadn't ousted me years ago):

First, I'd take a cue from Microsoft's success with Windows and aggressively evangelize the Mac OS. You should do whatever it takes to make sure System 7 is in the hands of every current or potential Mac user. Offer a competitive upgrade: Let people take their master disk for Windows 3 into an authorized Mac dealer to get a free copy of System 7.

And I'd go even further: I'd develop a version of the Mac OS for Intel-based machines. Overnight, that would expand your market (and your ISVs' market) tenfold. Apple promotes the fact that users can read DOS disks and can even emulate DOS (and soon, Windows) on a Mac, but it's done next to nothing to help users venture in the opposite direction. And with the number of Intel-based machines out there, that's a strategy you can't afford to ignore.

Because if you don't do something soon, Ebenezer, you're going to have a Dickens of a time.

Anti-virus software that's tough on viruses, not on you.

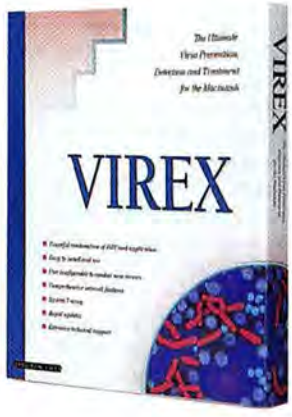
Computer virus problems within your organization can be a nightmare. New Virex® 4 is a network manager's dream. Its powerful network features enable Macintosh network managers to configure and update individual user machines from a single Mac. Network managers can also gather information about virus attacks within the organization. And Virex has always been the easiest anti-virus product to use. With Virex, you won't be tied up with lots of user questions about your anti-virus software.

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A print spooler is a print spooler is a print spooler. Right?

When it comes to printing in the background there are plenty of spoolers to choose from.

So why have over 150,000 Mac users chosen SuperLaserSpool™?

Because it supports more printers than any other spooler?

Or because it's the only one that supports Apple® ImageWriters® and HP LaserJets,™ DeskJets™ and DeskWriters™?

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Could it be our exclusive LaserQueue™ desk accessory that lets you preview and prioritize documents, re-route them to another printer, or print to several printers simultaneously?

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How about our one-year, money-back guarantee?

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It's the right thing to do.

FIFTH GENERATION SYSTEMS, INC

CIRCLE 107 ON READER SERVICE CARD.

ANDY IHNATKO

Murder by Chapter 11



Companies go belly-up in the computer business every day. Here are some guerrilla tactics to make sure you don't get taken along for the ride.

I'm paid to deliver The Harsh Truth, so here it is: Sooner or later, you will find that support for one of your favorite components of Your Complete Macintosh Experience has completely dried up. The blood will rush from your face as you realize that DiscoWare is bankrupt. No longer will you be able to get new software drivers; it'll now be impossible to get your DiscoDrive 105Q repaired; worst of all, you shipped off your old DiscoDrive 40 to corporate headquarters to be serviced a month ago, and now you'll never see it again.

It can be an even more harrowing experience for software users. An orphaned hard drive that still works today will probably continue to work for months or years, but a useful piece of software can go into total crash-and-burn mode when you upgrade your system software. To quote Karl Malden, "What will you do? What *will* you do?"

Death by Chapter 11

Unfortunately, when a hardware or software company files for bankruptcy under Chapter 11, there's usually nothing left to do but raise a glass and toast that company's permanently departed memory. True, Rolls-Royce made a jolly fine recovery after its early '70s bankruptcy, but we're not talking about cool cars with great hood ornaments here; we're talking about the computer industry, in which when a company's dead, it's a ghost, a vapor. If you hadn't nailed it to the porch, it'd be pushing up daisies.

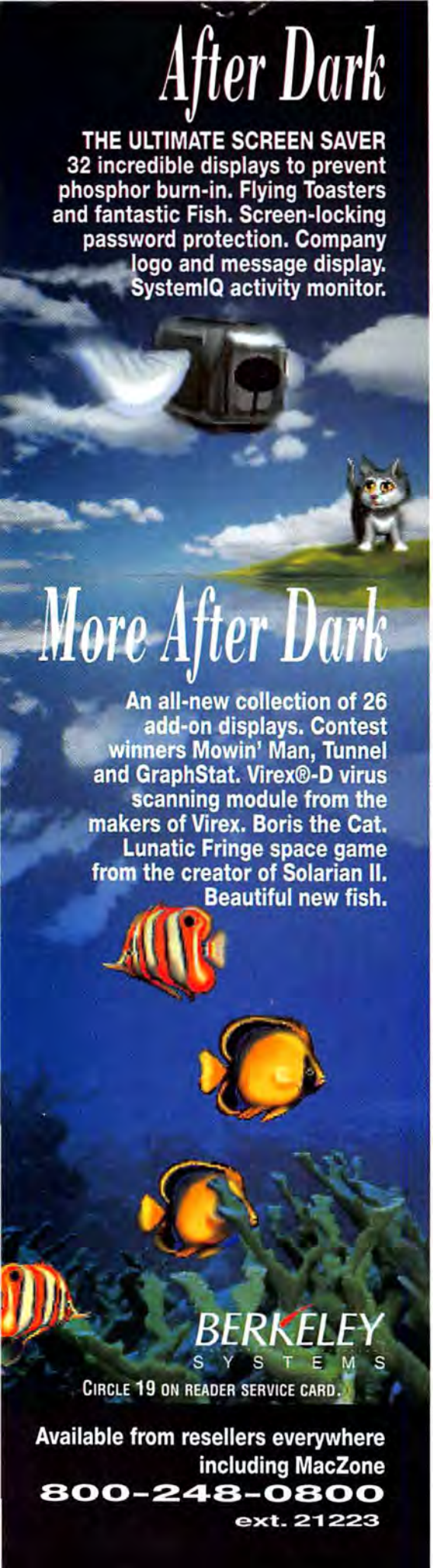
When a hardware or software company goes out of business, the first order of business is to *get back* anything the company owes you, whether it's a piece of your hardware that it's supposed to be repairing or a refund on an order it never filled. Do it *now*. First, though, light a candle and accept the possibility that whatever it is, it's gone for good. When a company goes bankrupt and owes you something, you become one of hundreds, perhaps thousands, of creditors, whom the court-appointed company trustee will attend to after making the bank, the landlord, the printing company, and all the big-time secured creditors happy. As you can guess, it can quite literally take *years* for your money or your equipment to be returned to you.

OK, now that you're free of that psychological attachment, onward to action. If a company has skipped out on an order you've placed, immediately call your credit-card company and have it refuse payment on the order if it's not too late; you won't be liable for the bill. If you paid by check and it's been cashed already, take it as a harsh life lesson: Pay for *everything* by credit card if at all possible. When a company seems to have stuck it to a cardholder, most credit-card companies fight like cornered wolverines to protect the consumer. It's in the credit-card company's best interests to do so, because its clout enhances the value of the card; take advantage of this powerful advocate.

If your card issuer can't help you, it's time to take the battle to the company itself. If the company's in the throes of bankruptcy in its full majesty, that may be a challenge, to say the least. It'll probably be tough even to get in touch with someone in actual authority, not some flunky trained to shrug off the complaints of mere users. If you can't get through, use the following technique, a favorite of mine: Bluff your heinie off to get your call transferred to someone in high authority and to get your call returned immediately. Suggestions: Claim to be from a company that buys used office furniture and fittings. Better yet, say you're from The First Bank of whatever the closest big city is and that you're calling with the loan information the company requested. Techniques such as these will usually ensure that you'll be swiftly transferred to someone in charge. OK, it's deceptive and once you're actually talking to Mr./Ms. Big, you'll still have to convince him or her to give you your money and/or equipment back, but it's a foot in the door. I should point out that I've used this technique on more than one occasion — and I've gotten my hardware back.

Growling Menacingly

If you still can't get anywhere and corporate headquarters is too far away for you to drive over and knock heads together, it's time for threats. Send a certified letter to the company, written on your best stationery, outlining the problem, how you've tried to resolve it, and how the company has utterly failed to come through. Be calm and professional, and above all describe in your final paragraph your intentions to notify (1) the Better Business Bureau; (2) the state attorney general's office; (3) the local government's office of consumer affairs (if one exists); and only if the firm has intentionally



used the mail to mislead or defraud you, (4) the postal inspectors. Finally, cc the letter to every single major Mac entity and publication you can think of. The notion that the whole world is watching tends to make a corporation pay closer attention to your letter. While you're at it, cc a law firm (pick one at random from the Yellow Pages). You don't actually have to send the letter to the law firm — just its name on the letter will have a suitably chilling effect.

I should stress that such a sharp, rude letter should be used only when the company has made it abundantly clear to you, in word and in deed, that it couldn't possibly care less about you and that a refund of money or a return of hardware is simply *not* going to happen. This sort of technique doesn't necessarily mean that the company is going to magically sit up and take notice, but if it is making any effort whatsoever to satisfy its users, it'll probably place you in the first group of people to be attended to.

If all that fails, then you'll just have to file a claim with the bankruptcy trustee and take your chances. You also have legal alternatives such as filing a suit in small-claims court or joining a class-action suit, but it's usually not worth the phenomenal effort it requires. Satisfy yourself with reruns of *People's Court* and throwing pretzels at the screen.

Life Goes On

So the company's dead and buried. What now? Well, there's good news: Usually you'll be able to find product support *somewhere*. When a major hardware manufacturer goes under, another company sometimes steps into the breach and provides support for orphaned users. Even if that falls through, you'll still have a good shot at getting repairs done. Most hardware — whether it's a monitor, a hard drive, a scanner, or whatever — is usually just a custom plastic shell wrapped around guts manufactured by another, utterly solvent, company. If your DiscoDrive 105Q does the big firework and there's no one around to support it, you can always crack open the case, yank out the drive mechanism, and ship it to the mechanism manufacturer directly for repair — to say nothing of third-party outfits that repair hardware for a flat fee.

If you're a glass-is-half-full type of person, cherish the thought that sometimes a product is purchased lock, stock, and barrel by another company and as far as the user is concerned, it'll be business as usual. It's quite the norm for software. If it has any market appeal at all, some major software publisher, possibly even the program's original authors, will probably buy the rights to it and continue to support it.

Unfortunately, such buyouts are not always happy events for users. Hear the sad tale of Silicon Beach, a thoroughly great software company purchased by Aldus a few years ago. While sailing under its own flag, Silicon Beach gave sledgehammer support and regular, significant upgrades to its two greatest products, SuperCard and SuperPaint. In the years since the buyout, these programs seem to have been largely ignored by their adoptive parent.

My Two Cents' Worth

The possibility of a corporate trustee's absconding to Rio with his mistress and most of the company's assets is just one reason why you should cultivate a close relationship with your hardware and software companies early on. If you rely on Product X, you should immediately make up a list of phone numbers for direct contact with corporate headquarters, technical support, the director of marketing, the sales office — often the same guy — and the outfit's parent company. That way, when the waste product impacts the whirly-bladed object, you'll know exactly whom to call and where and avoid mucking about with underlings.

Not quite finally: Be paranoid about faltering companies. The day a company files for Chapter 11, your troubles as a creditor begin, so be sure to tie up your affairs *before* it files. When a company is regularly announcing huge price cuts for its products and when it announces that it's cutting staff, that's the time to start getting worried. When the company's officers are accused of impropriety or they take more than six weeks to resolve your complaints, assume the worst and take steps to ensure that you won't go down *with* them. Politeness goes out the door: This is your *money* we're talking about.

Finally, *never, ever* trust a company that has just finished reorganizing after Chapter 11. If another recognizable company has bought the company, great; have confidence in its ability to provide product and service. Otherwise, don't trust 'em until their bankruptcy is two years behind 'em.

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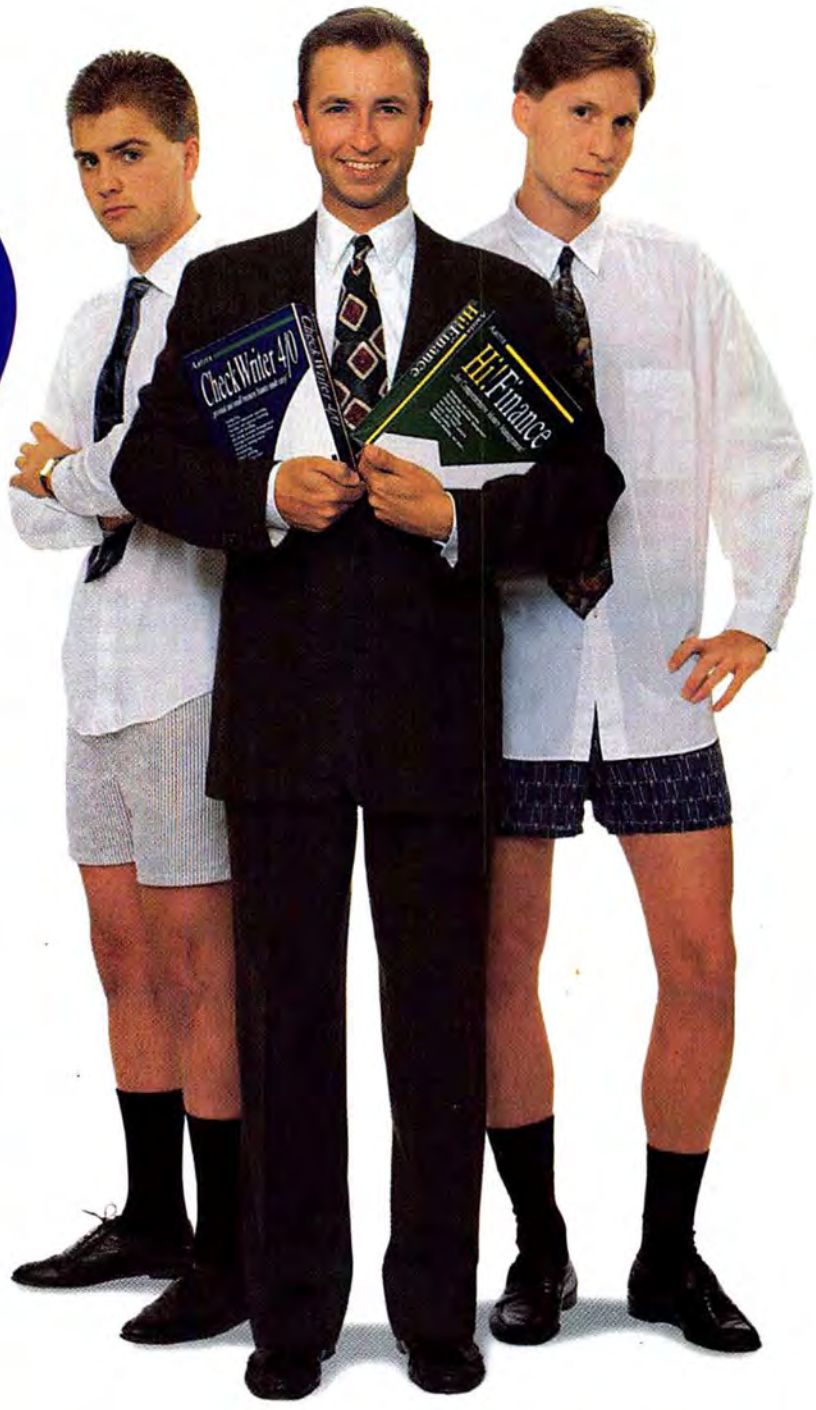
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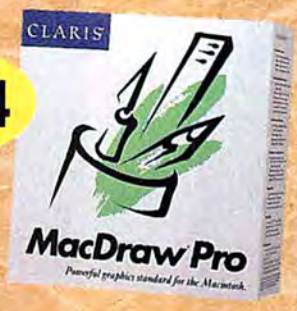


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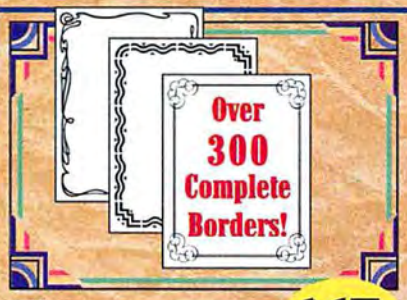
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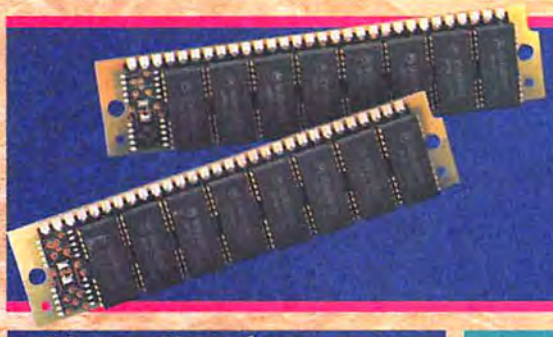
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	SE	4	4	2	05653	$132
CLASSIC	Classic	2	2	1	03824	$88
* with adapter	Classic	2	4*	1	05653	$66
Classic II LC/LC II	Classic II	2	4	1	05653	$66
	Classic II	2	6	1	05655	$125
	LC/LC II	2	10	1	05656	$235
SE/30	SE/30	8	8	4	05653	$264
	SE/30	8	16	1	05654	$475
	SE/30	8	32	2	05654	$950
MAC IIsi	IIsi	4	5	2	05653	$132
	IIsi	4	9	1	05655	$125
	IIsi	4	17	1	05654	$475
	IIsi	4	65	4	05338	$3,600
MAC II, IIx, IIcx, IIci	II	8	8	4	05653	$264
	IIx	8	16	1	05819	$698
	IIci	8	8	4	05653	$264
	IIci	8	16	1	05654	$475
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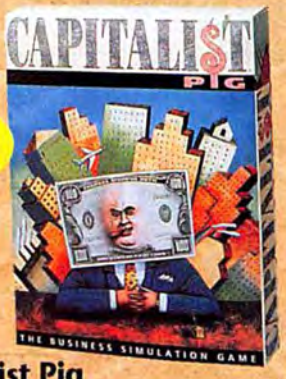


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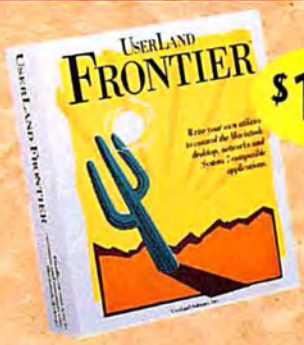
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UserLand Frontier

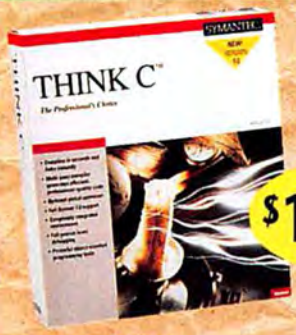
UserLand Frontier is the first scripting software that allows you to write your own desktop utilities to customize, automate and simplify your Mac. With it you can write your own utilities to control your Mac desktop, networks and System 7-compatible applications. UserLand #05323



$139

Claris HyperCard 2.1 Development Kit

Claris HyperCard 2.1 Development Kit is one of the best-selling tools for creating custom applications on the Mac. Its intuitive relational programming scheme makes it easy to build everything from interactive instructional materials to sophisticated new applications. Claris #04302



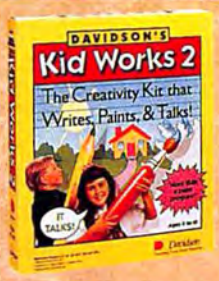
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THINK C 5.0

Here's the integrated C development environment you've been looking for. THINK C integrates the editor, linker and compiler to form a complete C language development package. Many major Mac applications have been developed in THINK C, including QuarkXPress. Symantec #04095 ❓ ✔

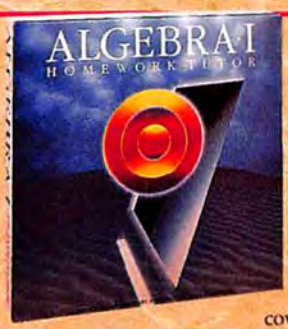
Give Your Kids a Head Start with Quality Educational Programs

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Kid Works

With Kid Works children create and hear their very own illustrated stories. Davidson's Kid Works uniquely combines an easy-to-use word processor, paint program, and text-to-speech all in one! With the ability to convert text to pictures and pictures to text, children learn to express their thoughts both visually and in writing. Davidson & Associates #05550 ❓ ✔

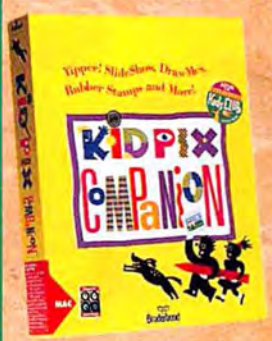


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Algebra I Homework Tutor

Your own private tutor at your side helping with every step of your Algebra homework! It's not just drill and practice and much more than canned problems. You enter your own math problems into the "smart" editor and the program walks you through the process, step by step. If you like you can request detailed hints before each step. Still stuck? You can have Algebra I solve a similar example. The program covers equations, factoring, laws of exponents, operations on monomials and polynomials, algebraic fractions and more. It's better than having a mom who's an Algebra teacher! Missing Link Software #05379 ❓ ✔

- Covers virtually all aspects of Algebra I
- Provides detailed hints about how to proceed at each step
- Checks your work after each step
- Generates an unlimited supply of random examples
- Eliminates errors caused by sloppy writing
- Runs on any Mac Plus or later machine



Kid Pix Companion

Now, with Kid Pix Companion, your family can have even more fun with Kid Pix. You get a new SlideShow which you can use to create computer extravaganzas that let you show a series of Kid Pix drawings and tell a story. And you get nineteen new Hidden Pictures and 112 new rubber stamps—everything from monsters to mermaids. Plus much more! Brøderbund #05512

$24

$34



Kid Pix 1.2

Kid Pix is an amazing paint program created just for kids. It combines special effects art tools, picture stamps, sounds and more. Magic screen transformations turn the computer into a magical art studio. With Kid Pix, you don't just paint a masterpiece, you hear it too! Every brush and tool has its unique sound effect. You can even record greetings, poems, or music to enhance your creations. Brøderbund #03994

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#05026 ❓ ✔ Snooper w/NuBus Card$168

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SAM 3.0

SAM is one of the best-selling, highest-rated virus protection, detection and repair program for the Macintosh. It intercepts viruses, scans and repairs files, combats known and unknown viruses and more. Symantec #00116 ❓ ✔



$48

Star Trek: The Screen Saver

New from the makers of After Dark, one of our all-time best selling screen savers, comes Star Trek: The Screen Saver. It saves your monitor from phosphor burn-in with fantastic displays based on the original Star Trek series. Berkeley Systems #05934

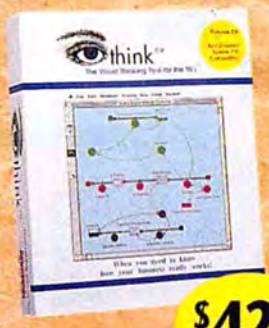


$146

Retrospect

Retrospect provides automatic, unattended backup for any Macintosh to tape, cartridge or optical device. Set it up once, and the built-in calendar backs you up again and again. It also saves hard disk space by archiving seldom-used files to the backup media for future retrieval. Dantz #02586

#00484 Retrospect Remote 50Pk$648
#03828 Remote 10Pk w/o Retrospect$146
#04194 Retrospect Remote 10Pk$263



$424

ithink 2.2

The visual thinking tool for the 90's, think is the amazing software package that accelerates both individual and organizational learning. ithink allows you to quickly create an annotated full-color representation of a key business process or issue. High Performance Systems, Inc. #03837



$38

More After Dark (M.A.D.) & After Dark Bundle

After Dark, one of the finest screen saver collections available for the Mac, comes with over 30 displays including Flying Toasters and Fish! The package also includes sound, password protection and message displays. More After Dark comes with over 25 incredible new displays for After Dark. Includes Virex-D virus detector, Crazy Kittens and Lunatic Fringe game modules (requires After Dark). Berkeley Systems #04046 ❓ ✔

#02785 After Dark 2.0$28
#04053 More After Dark$22



$89

In Control

Get organized fast, get In Control. MacWEEK calls this to-do list manager , "undeniably the product of choice." With it you can track and manage the details of your daily activities: deadlines, priorities, status, staff assignments, anything you want. It's powerful multi-column outline lets you organize - and reorganize - lists instantly. Attain #04949



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Guaranteed Undelete

Other utilities insist that you take your chances when you undelete a file. Only Guaranteed Undelete ensures that deleted files are reclaimed in the order they were deleted, *guaranteed!* Simply browse the menu of deleted items and click on the file or folder you want to recover. Utilitron, Inc. #05743



$78

DateBook

Keep your professional life running smoothly with DateBook, the Macintosh personal organizer that enables you to enter and keep track of appointments, schedules and things-to-do. DateBook prints monthly, weekly and daily schedules as well as fILOFAX and DayTimer formats. After Hours Software #05209 ❓ ✔



TouchBASE 2.0

$74

TouchBASE is a database which keeps track of personal and business contacts. It remains handy all the time--no matter what application you're using. After Hours Software #03908 ❓ ✔

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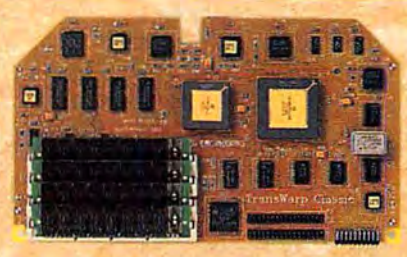
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This 16MHz 68030 accelerator upgrade quadruples the performance of a standard Macintosh Classic. TransWarp Classic is available with optional 68882 math chip (FPU) and optional support for up to 16MB of memory. Applied Engineering #05363



$478

40MB HitchHiker

HitchHiker offers all the capabilities of a standard external hard drive, yet fits in the palm of your hand. Weighing less than 10 ounces, each drive is shock-mounted in a compact, rugged case that measures only 5.4" x 2.9" x 1.1" (13.7 x 7.5 x 2.8 cm). But don't let the small size fool you—HitchHiker gives you big drive performance and reliability. MASS Microsystems #00899

#00971 HitchHiker 80MB $679

#05936 HitchHiker 120MB $758

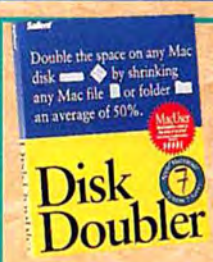


$88

$72

FolderBolt/NightWatch II

FolderBolt protects your folders (including your System Folder) from security breech. You can create completely locked folders, read-only folders, or password-protected drop box folders. **NightWatch II** is the perfect solution if you wish to limit access to your entire hard disk. It offers hard disk protection while you're away and screen security while you work. Kent Marsh Ltd. #00258 FolderBolt • #04981 NightWatch II



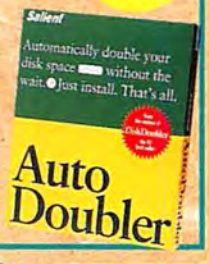
DiskDoubler 3.7

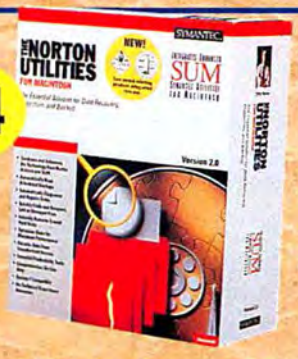
Make your disk drive more efficient. DiskDoubler effectively doubles or triples your storage capacity. 5th Generation #03515

AutoDoubler

$58 EACH

AutoDoubler is one of the easiest ways to increase your hard disk capacity. It automatically keeps your hard disk compressed. It's lightning quick and completely transparent, so it won't interrupt your work. 5th Generation #04955





$94

Norton Utilities 2.0

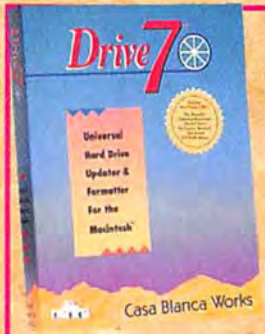
The Norton Utilities Version 2.0 offers intuitive tools for protecting your data and enhancing your Mac's performance. With these tools installed, it's easy to keep your computer running at peak efficiency, and even the most difficult disk problems aren't a problem. Symantec #04890



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PLI Infinity Floptical 21MB

The most exciting development in floppy drive technology ever! PLI's Infinity Floptical 21MB combines the well-proven, reliable performance of floppy technology with the higher capacity of hard disk drives. Image your standard floppy drive reading and writing 1.44MB floppy disks faster than ever and using 3.5" floppy diskettes with a formatted capacity of 20.8MB! PLI #04817



$48

Drive7 2.3

With Drive7 you can update over third-party drivers without having to initialize or reformat them. With new version 2.3 you can cut and paste partition sizing, multiple partitions on removable devices. Plus, you get improved speed, support for the Quantum Go•80 and 120 Apple Macintosh PowerBook hard drives. Casa Blanca Works #00858

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MultiSync FGx Monitors

Some products demand to be described in superlatives. The new FG series of MultiSync monitors from NEC fall into that category. They feature the best color accuracy in their class. Completely redesigned from the inside out, they give your Mac brighter, sharper, more accurate images. The MultiSync 4FGx, 5FGx and 6FGx monitors feature the AccuColor Control System which provides unprecedented color accuracy, nothing short of dazzling. Finally, you can match on-screen colors to printer output, other monitors and color reference systems. All FGx monitors feature advanced flat, square screen technology that gives you exceptionally sharp text and crisp graphics with edge-to-edge display for greater active screen area. These flat screen monitors are packed with state-of-the-art extras like the new FullScan™ capabilities which allow you to see up to 36% more active screen display. NEC

MultiSync 4FG 15" NEC #07143 ❶$778
MultiSync 5FG 17" NEC #07399 ❶$1398
FG 8x Bit
Clr Display Interface Card #00578$718
FG 24x Bit
Clr Display Interface Card #04985$1284

$95



NEW

Morph

The hottest image effect of the nineties is now available for your Macintosh! With this affordable, QuickTime-compatible application you'll create dazzling, smooth transitions between images. Morph is the essential tool for anyone using a Mac for computer graphics. Gryphon #05925

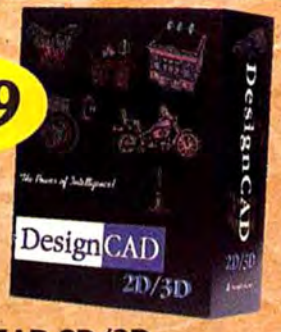


$74

JAG

JAG is for anyone concerned with the look and visual impact of the images and animations they create. It's appropriate for use with all color paint packages, 24-bit photo retouching software, 2D animation and multimedia toolkits, and 3D modeling and rendering environments.
Ray Dream #04150

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DesignCAD 2D/3D

DesignCAD is a revolutionary and professional computer-aided design and drafting package that provides complete 2D drafting and 3D modeling in one package. It's designed for engineering (mechanical, architectural & electrical), animation, desktop publishing and multimedia.
DesignCAD, Inc. #04180 ❶ ✔

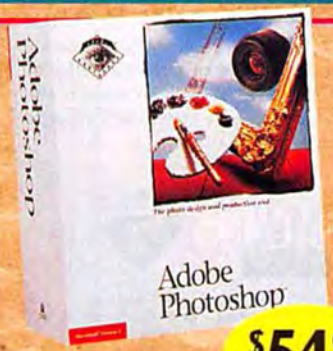
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NEW

Aldus IntelliDraw

New from Aldus, IntelliDraw is an exciting new type of drawing program that gives you an easy new way to visually experiment, refine and draw your ideas. Full text and drawing options provide the flexibility you need. Aldus #05481



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Photoshop 2.01

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$452

Adobe Premiere 2.0

Produce attention-grabbing QuickTime video movies on your computer. Adobe Premiere is a simple yet powerful user interface for visually combining QuickTime video footage, audio recordings, animations, still images and graphics to create new QuickTime digital effects. Utilizes plug-in filters, including those for Photoshop.
Adobe #04670 ❶ ✔

$494



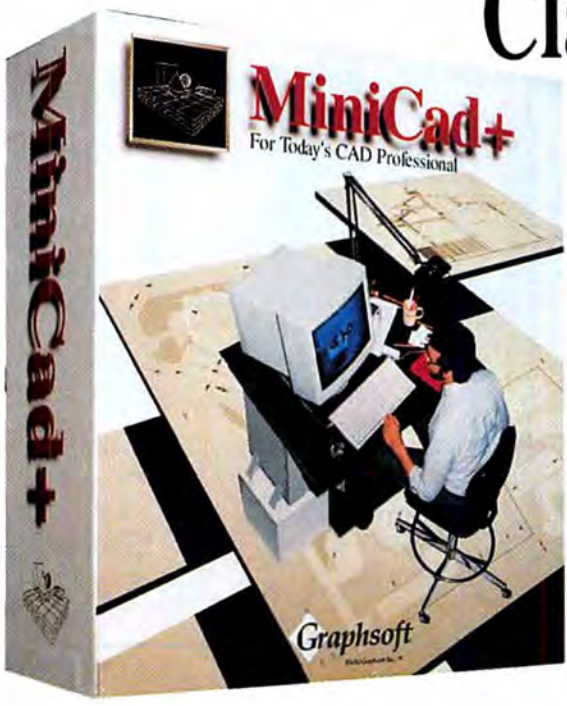
FREE! Aldus PrePrint 1.5

PageMaker 4.2

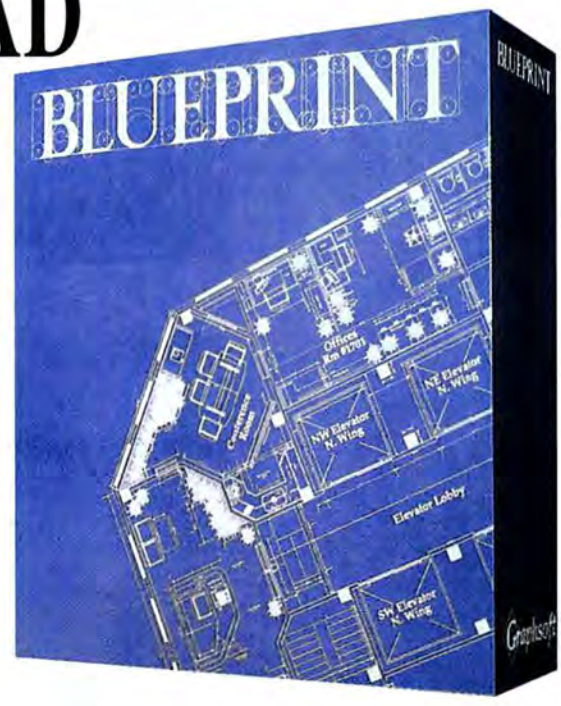
This is it. The one and only PageMaker desk top publishing powerhouse from Aldus. The new System 7 Savvy version 4.2 is packed full of enhancements and features like FREE Aldus PrePrint 1.5, Aldus additions, System 7 Savvy, numerical control, improved performance, and hot links to Aldus FreeHand 3.1. Aldus #04573

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- ☐ edit inside groups
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Claris CAD $ 899.00

2D CAD:

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- ☐ Graphic Guide for locating snaps
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- ☐ editable line styles
- ☐ pan by scroll bars
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- ☐ DXF translator - extra charge
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- ☐ fillets
- ☐ editable fills
- ☐ beziers
- ☐ wall-join
- ☐ chamfers
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- ☐ hatching

3D CAD:

none

Integrated Database/Spreadsheet:

none

Programmability:

none

Blueprint 4 $ 295.00

2D CAD:

- ☐ smart walls
- ☐ Smart Cursor for locating snaps
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- ☐ editable line styles
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- ☐ edit inside groups

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MICHAEL SWAINE

Applications That Fit



Software off the shelf is like a suit off the rack — it'll never fit exactly right. That's why you may be buying custom-tailored applications sooner than you think.

Attendees at this year's Seybold Conference in San Francisco in September may have been surprised to hear Apple and NeXT founder Steve Jobs and industry watcher Jonathan Seybold discussing a problem as antediluvian as the backlog of requests for custom applications in corporate IS (information system) departments.

But hold on; I'd better back up a step. Some of you may not know what I mean by "custom applications." It's not a MiniFinders category, and you won't find a lot of advertisements for custom applications in this issue. Am I talking about HyperCard stacks or the stand-alone applications you can produce with the latest version of HyperCard?

No. What I'm talking about, and what Jobs and Seybold were talking about, is a class of software older than the personal computer, a class of software some readers of this publication know all about but that the personal-computer revolution has largely ignored. But all that is about to change.

Those of us who use such expressions as "the personal-computer revolution" are likely to describe that revolution as being all about "empowering the individual." Someone whose rhetoric was imprinted in a different decade might talk instead about "shrink-wrapped applications for personal productivity," but the idea is the same. The software written for personal computers has tended to be generic — word processors and spreadsheet programs, for instance — and to be sold in stores, shrink-wrapped like a Guns 'n' Roses CD.

Now, this is a relatively new model for selling software. The first retail computer store opened in July 1975, in West Los Angeles. Before that, at least, there were no shrink-wrapped applications. The old model was: You bought your software from the hardware vendor, and if it didn't do what you needed, you could ask the vendor to write a custom application for you or have your IS department do it.

When personal computers arrived on the scene, it was not at all clear how to integrate them into the multiuser systems many companies used. Consequently, application developers focused on empowering the individual (or enhancing personal productivity, if you like). They didn't have much choice.

But many of the daily activities of a business involve specialized, collaborative tasks such as inventory management and order processing rather than generic, personal tasks. These are workgroupwide or enterprisewide tasks. If the PC solved the personal-productivity problem, or even if it didn't, it didn't do diddly for the workgroup-productivity problem.

The workgroup-productivity problem involves customization and integration, and all this is falling on the IS department, which is now dealing not with a monolithic mainframe and a collection of attached terminals but with a heterogeneous network of personal computers, a mess every bit as ugly as it sounds. According to Seybold, "When we had turnkey systems, the vendor did the integration. Now, with personal computers, the customer does the integration." He might have added, "and the customization." Unfortunately, the tools are not equal to the task.

What is needed is the ability for people, whether they're IS folks or users, to develop custom applications for enterprisewide or workgroupwide tasks quickly, without programming, and to the level of quality of shrink-wrapped software.

That might sound like a tall order, but a lot of people have been working hard to make it happen.

The Objective View

Part of the answer, conventional wisdom has it, is the object-oriented paradigm, an approach to constructing software that builds on components. In principle, the paradigm can apply at any level of development, from low-level system programming to a high-level model in which a nonprogramming user can plug together database or graphics or mathematical components to produce a new application customized to a company's unique needs.

Steve Jobs thinks that his company has already implemented the object-oriented solution. NeXTstep, which I alluded to last month, is a truly object-oriented development system, and NeXT developers can shop for componentware in a catalog of more than 100 objects, which Jobs predicts will be expanded to 1,000 in the next 18 months. Or maybe the real component-software solution will come with the Taligent operating system. More than likely it will come from every direction at once. Seybold thinks that this is the wave of the '90s. In the coming years, "there will be a focus on custom

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requirements and integration," he said.

When that focus comes, it will change the shape and size of application software and the way it is bought and sold.

Seybold pointed out that "shrink-wrap, by its nature, must sell a lot of copies to a lot of people, which means you need more bells and whistles, making it more complex for the rest of the people." Components for custom applications are likely to be smaller and more focused, along the lines I discussed last month.

This could lead to a change in the balance of power between buyer and seller in the market. In fact, buyers already have more influence than is usually acknowledged. Volume buyers have much to say about the feature sets of shrink-wrapped software, and they, according to Seybold, set standards, even if they don't create them.

With those smaller components, smaller vendors may play a bigger role and the market may expand.

Where does all this lead? According to Seybold, it leads to a market in which people select what they want rather than buying off-the-rack, generic shrink-wrapped applications.

Sounds good, but is it likely? What might it mean? And how might people select?

Jobs' model is, of course, mail order. The objectware catalog evokes a familiar scenario: Other markets have seen a movement toward more catalog sales. Buying from a catalog, which made sense for the isolated farm families of the '30s, made sense for the rushed two-income families of the '80s too. Catalogs are convenient for consumers and economical for vendors.

Kicking Tires

Maybe. But there is the problem of being able to kick the tires. My friend Jeff Dunteman recently wrote on the subject in a programmers' magazine, cautioning that all components are not alike; a part's not a part if it isn't the part you want. Jeff was speaking to programmers, and maybe a part is more nearly a part when you're dealing with higher-level software components for nonprogrammers. Still, buying without trying is buying a pig in a poke.

Of course, if the alternative is shrink-wrapped applications, you have no choice.

There is an existing model of software distribution that gets the software into users' hands for testing before purchase: the shareware model. The lack of any enforcement of payment makes it a highly questionable marketing scheme, but it's still an effective way to get a product distributed. Demoware is an improvement but still lacks immediacy.

Some font vendors have been using a scheme in which you receive a locked CD-ROM full of fonts and call to get a key for unlocking individual fonts. You trade your credit-card number and expiration date for a decryption key.

Here's one scenario for the software-component market of the future, based on the shareware distribution model and the purchasing technology of CD-ROM font libraries:

The developer of a software component distributes its product freely on-line and encourages users to copy it, just as shareware authors do today. It supplies all the needed documentation electronically with the product. You, the customer, always get to try before you buy.

To ensure that you do buy it rather than just keep trying it, the author includes a usage counter in the product. After a set number of uses, the product locks up, displaying a phone number to call for more uses. In effect, the author gives away the product and sells uses.

When you want to purchase some uses, you key in a few numbers: your credit-card number and expiration date and the number of uses. Then you click in a dialog box, and the program decrypts a serial number, dials the support line, and trades your numbers for a decryption key that unlocks this particular copy of the software for the desired number of uses. The transaction takes a few seconds, and you're back in business.

A vendor would have to make many judgments in setting up such a system — what, exactly, constitutes a use, for example? And how many uses can a customer buy at one time? But there are no unsolved technical problems in the scheme. It could result in lower marketing costs, fairer and lower pricing, and a relatively safe way to let users try before buying. I don't know of any vendor using exactly this scheme, and it may well be fatally flawed, but I think we can expect marketing schemes no less novel than this within this decade, schemes that give component buyers more control over transactions.

I think of it as empowering individual customers. But then, I would.

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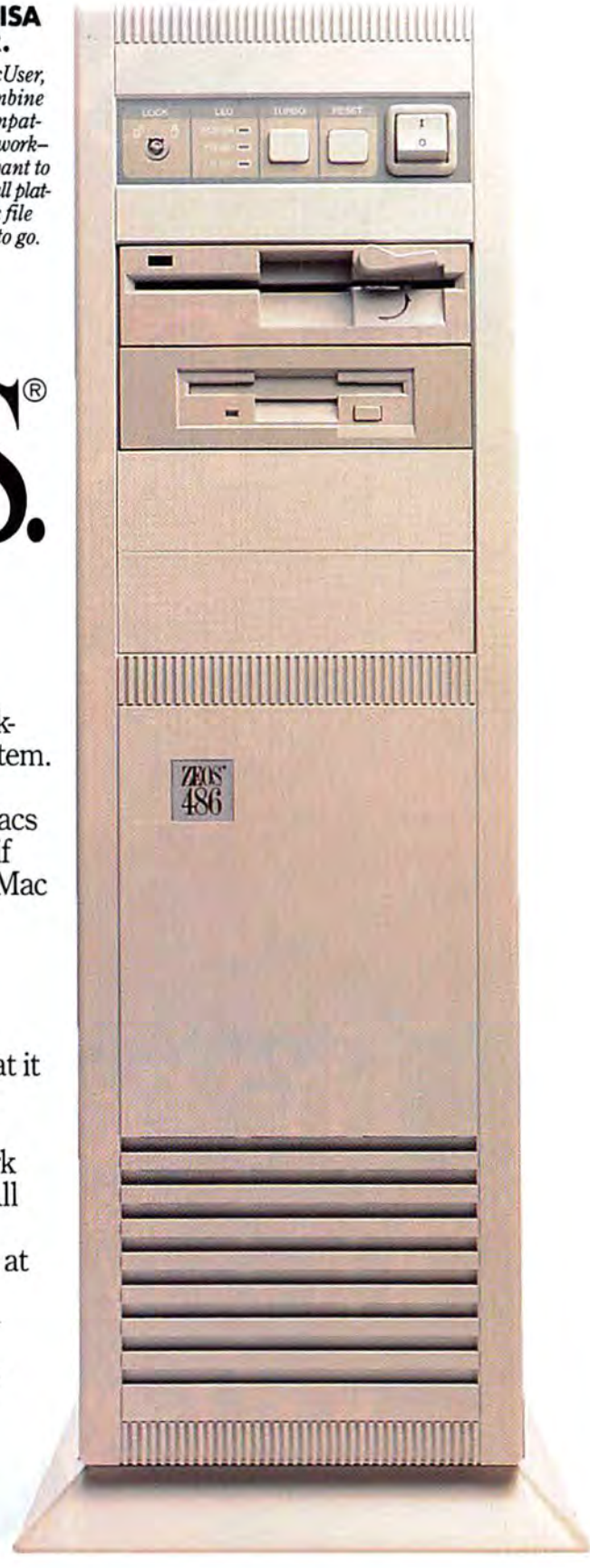
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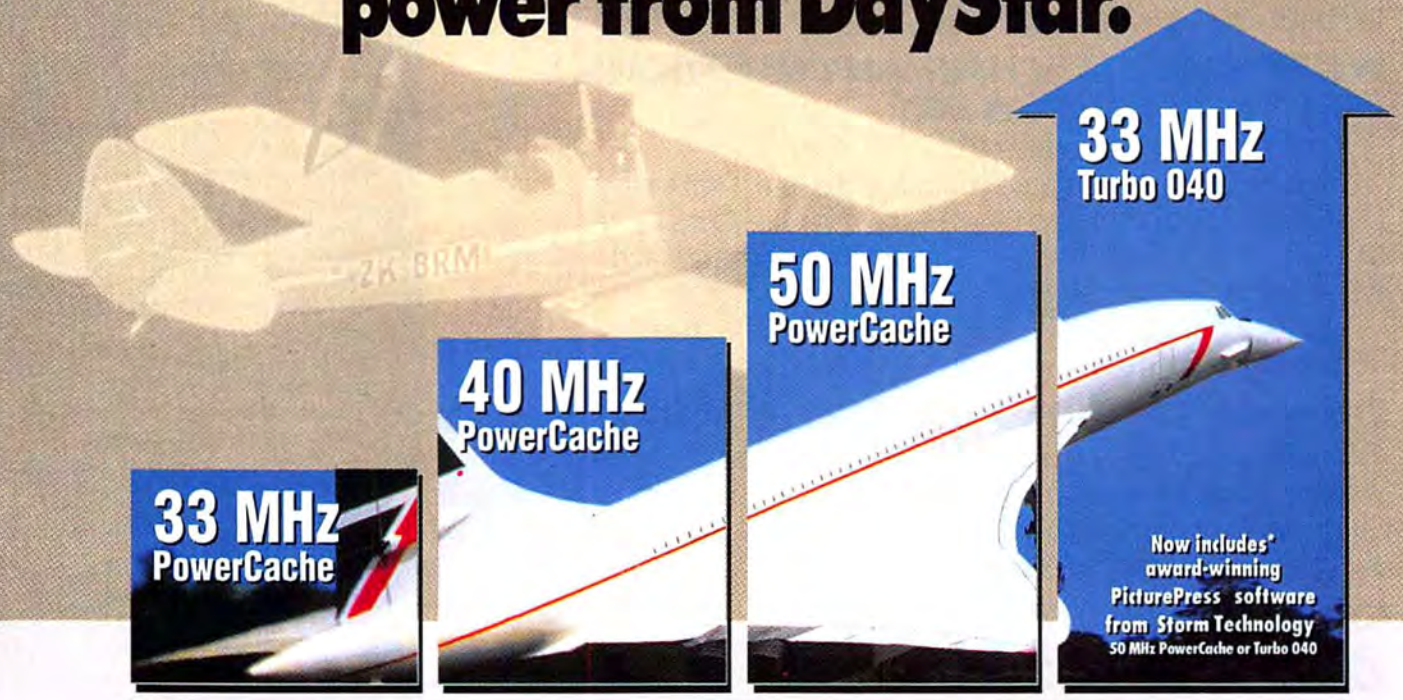
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NEW ON THE MENU

Alarming ideas: SonicPRO International (408-982-2568) has come up with the SonicPRO Alarm AP128 ($99.95), a motion-detector-activated alarm that clips onto a PowerBook. The user sets the alarm's sensitivity, duration, and delay, and if anyone moves the PowerBook, the alarm goes off — just like a car alarm. With the AP128 installed, you can safely leave your PowerBook completely unattended — riiight

By Russell Ito



Small type: Contrary to everything you may read (including in these pages), not all printers are laser printers and not everyone needs a laser printer. Consider for a moment these entries from Hewlett-Packard (800-752-0900) and GCC Technologies (800-422-7777 or 617-890-0880). * The Hewlett-Packard **DeskWriter 550C** ($1,099) is the successor to the successful DeskWriter C. A color inkjet printer with 300-dpi resolution, the 550C improves on its predecessor by using a true-black ink cartridge in addition to three color cartridges, so you can print black and color material on the same page, and you can do so as much as four times as fast as with the earlier printer. The 550C has a somewhat sleeker look (including dimples!) and better paper handling, including envelopes. * And sometimes you need a printer you can throw into your briefcase. The GCC Technologies **WriteMove II** ($599) may be the answer. Roughly half the size and a third the weight (2.5 pounds) of a PowerBook, the WriteMove II uses thermal technology to produce 360-dpi output on plain paper or transparencies, using a ribbon that's not unlike the film ribbon you used to see in Selectric typewriters. The WriteMove II uses either AC or a NiCad battery, which is good for 12 to 15 pages and recharges in about 6 hours. The WriteMove II is color-coordinated with the PowerBooks, so it won't clash with their granite plastic. GCC also reversed the polarity on the AC adapter socket, so you can use the PowerBook AC adapter instead of the WriteMove's. That way you only have to carry one unit rather than two. * With all the attention given to network printers, it's easy to forget that sometimes simple solutions are the best.



Up to Date . . .

BigThesaurus, Deneba Software's Godzilla-sized electronic thesaurus, has finally been upgraded to version 2.0 and is at long last System 7-compatible. 305-596-5644. $99. * **Spelling Coach Professional,** Deneba Software's massive spelling checker, is also finally System 7-compatible. Version 3.1 incorporates Deneba's Open Architecture technology, so future upgrades will simply require a drop-in item. 305-596-5644. $199. * **FastBack Plus Mac,** Fifth Generation Systems' backup package, is now in version 3.0. Enhancements include interface improvements, AppleShare 3.0 support, and Finder-readable backups. 800-873-4384 or 504-291-7221. $189.

HP's New Printer Standard

The Hewlett-Packard LaserJet 4M is a major advance over the company's previous standard bearer, the LaserJet III. The 4M combines HP's Resolution Enhancement Technology with a new Canon engine with microfine toner to produce sharp, clear prints with resolutions as high as 600 x 600 dpi. The 4M is also the first mainstream desktop HP printer to have its PostScript code on the motherboard instead of in a separate cartridge. A 20-megahertz Intel 80960 RISC chip lets the 4M approach its true engine speed of 8 ppm, whether it's printing 300- or 600-dpi jobs. The 4M is an Adobe PostScript Level 2 unit and ships with 6 megabytes of RAM (expandable to 22 megabytes with additional SIMMs).

Intended for mixed-platform environments, the 4M comes with serial, parallel, and LocalTalk ports standard and includes the ability to switch ports and languages (HP PCL 5 or PostScript) on the fly. Ethernet is available as an option, using the same HP JetDirect interface card that fits the HP IIIsi.



HP's new LaserJet 4M produces stunningly sharp text and graphics and is ideal for mixed-platform environments. A RISC-based, PostScript Level 2 model, it can produce resolution-enhanced, 600-dpi prints.

And in keeping with the printer's networking emphasis, the paper capacity is beefier than its predecessor's too. The 4M comes with two trays, providing a total capacity of 350 sheets; an optional third tray can hold an additional 500 sheets. A power envelope feeder is optional, and HP supports several paper-handling options (including tray sequencing) in its software. Unlike that of some other printers, the 4M's design is self-contained — the standard paper trays don't stick out, so the overall footprint is compact.

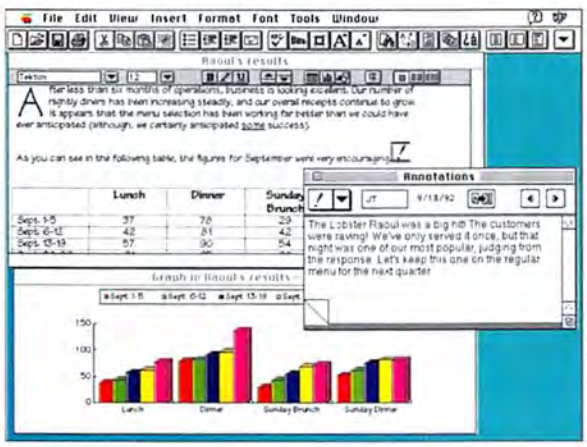
Hewlett-Packard Co., Direct Marketing Organization, P.O. Box 58059, MS511L-SJ, Santa Clara, CA 95051; 800-752-0900. $2,999.

The Latest Word

Word 5.0 isn't even a year old yet, and Microsoft has already announced an "enhanced" version — 5.1. Although the number of new features is modest, the improvements themselves are much more than you usually find in a 0.x upgrade.

First, Word 5.1 includes an editable tool bar that's similar to the one in Excel 4. Among the buttons that come preinstalled are a bullet feature, for adding bullets and hanging indents to text; an envelope-printing option; and the ability to issue an open, save, or print command with just a single click.

Tables are easier to create, thanks to the Table button on the ribbon. Clicking on the button pops up a grid, and all you have to do to create a table is drag out a region with the desired number of rows and columns. You can access the Borders dialog box directly by clicking on the Border button.



Word 5.1 has a customizable tool bar for your most-used functions plus other enhancements. You can create drop caps with a single command, add pop-up text annotations, create tables with just a drag, and quickly turn tables of numbers into charts.

The most significant addition, however, is the inclusion of a graphing module that lets you easily convert any range of numbers in a table into one of a variety of 3-D charts. The data in the table remains linked to the chart, so if you edit the table, the chart updates appropriately.

Text annotations are another add-on item. Unlike footnotes, annotations pop up as floating windoids when you click on a small icon. The electronic equivalent of Post-it notes, Word 5.1's annotations are automatically stamped with the annotator's initials and the date of the annotation.

As Apple did with System 7.1 (which you can read about elsewhere in this issue), Microsoft has used Word 5.1 to incorporate all the minor fixes and additions it has added since Word 5.0 shipped. These include improved spelling and grammar checkers, a patch that fixes a font problem in version 5.0, and the QuickTime-movie module.

Microsoft Corp., One Microsoft Way, Redmond, WA 98052; 800-426-9400 or 206-882-8080. $495; upgrade from Word 5.0, $14.95.

PowerPoint Redux

PowerPoint was the first presentation package for the Mac, but there hasn't been a new version in four years. PowerPoint 3.0 is the upgrade everyone has been expecting.

PowerPoint 3.0 is now a core-code program, so identical versions can run on Mac and Windows platforms with the same file format.

PowerPoint goes to some lengths to simplify the presentation process. For example, to create a presentation, you can simply start typing on a slide and add more slides as needed. If you prefer working in an outline, you can do so, and in fact, the outline is just a view of your slides, so all the text and formatting appear in it. The outlining features extend throughout the package, so you can even work with the text on a slide as if it were in an outline, dragging topics around to promote or demote them.

The new PowerPoint also includes a drawing environment with some special tools. For instance, a shape tool automatically draws any of 24 adjustable shapes and then automatically attaches text to them and centers it. In addition, the package contains 500 pieces of special clip art. If, for example, you have the image of someone sitting behind a desk, deleting the desk reveals the person's legs (no, you can't remove the person's clothes).

PowerPoint 3.0 includes the same graphing module as Word 5.1 does but with some special presentation-related intelligence built in. When you build a chart, for example, the module checks the color scheme being used in the slide and matches the chart's colors to those in the slide.

The new package also has all the whizzy presentation features you'd expect, including automatic builds that let you present your slides a bullet point at a time, a variety of transitions, and QuickTime support.

Microsoft Corp., One Microsoft Way, Redmond, WA 98052; 800-426-9400 or 206-882-8080. $495.



The long-awaited PowerPoint 3.0 lets Mac and Windows users share presentations transparently, without translation. A tool bar keeps your commonly used functions at hand, and the shape tool creates basic shapes with automatically attached text.

Apple Slashes Prices Again

The annual fall ritual continues: Apple introduces new machines; Apple slashes prices on existing machines, ranging from $460 to as much as $1,510.

All of Apple's existing models have been slashed. The Classic II (4/40) is down $620 (36 percent), to $1,209; the LC II (4/40) is down $460 (27 percent), to $1,239; the IIsi (5/80) has been cut a full $1,000 (33 percent), to $1,999; and the IIci (5/230) is down $1,510 (33 percent), to $3,089. With the new pricing, the Mac IIci is an especially attractive buy, because it's the functional equivalent of the Mac IIvx (see "The Multimedia Mac: The Macintosh IIvx," elsewhere in this issue) and is actually about $200 cheaper.

The prices of the high-end Quadra series have also been cut, but the margins aren't as large. The biggest cut was to the Quadra 700 (4/230), which dropped $1,460 (22 percent), to $5,039. The biggest cut to the Quadra 950 was to the 8/230 model, down $1,140 (13 percent), to $7,359.

Apple Computer, Inc., 20525 Mariani Avenue, Cupertino, CA 95014; 800-776-2333 or 408-996-1010.

NewsLine

Reports and Analysis

IBM to Build PDAs

NEW YORK, NY — Sometimes IBM can't seem to resist following Apple's lead. This time, IBM has said that it too will enter the PDA (personal digital assistant) market sometime next year. Big Blue has announced that at the fall Comdex show in Las Vegas this November, it will show prototypes of several small computing devices. The preannounced products are expected to include notebook-sized computers, "subnotebook-sized" models, and PDAs. IBM says that all of its products will include some form of wireless communications, either via radio or via a cellular-phone system. IBM hasn't announced a release schedule for its products, only that they are expected to go on sale sometime in 1993.

Apple Closes Fremont Plant

CUPERTINO, CA — Nine years ago, Apple Computer's Fremont manufacturing plant was touted not only for being the first Macintosh facility but also for its innovative use of robotics. But times have changed: the bottom line rules all. As part of a worldwide reevaluation of its manufacturing and distribution activities, Apple has decided to close the Fremont plant by June 1993, relocating its operations to the company's larger Sacramento campus. Of the 700 employees at Fremont, 350 are expected to be offered transfers to Sacramento and another 50 to plants in either Fountain, Colorado, or Cupertino, California. The remaining 300 or so employees will be laid off. In addition, 45 are expected to be laid off at Apple's facility in Cork, Ireland. As a result of the layoffs, Apple says it will take a charge against its earnings of $20 million before taxes in the current fiscal quarter.

IBM Gives PCs Own Company

ARMONK, NY — Having learned that a gazelle can turn faster than an elephant, IBM has announced that it will spin off its PC-manufacturing business into a separate company to be called IBM Personal Computer, which will enter the game as the largest PC manufacturer in the business, with $7 billion in sales and about 10,000 employees.

TYPOGRAPHY

Pixar Typestry and StrataType 3d

Stunning output and special effects put Typestry ahead of StrataType 3d for 3-D type design.

Pixar Typestry and StrataType 3d are two type-design programs that can take your TrueType and Type 1 fonts into the third dimension — without requiring you to wrestle with the complexities of a full-blown 3-D-design program. By eschewing the multiple views and unfamiliar tools of the more expensive 3-D packages, both Typestry and StrataType 3d make it relatively easy to create eye-catching 3-D type designs.

Pixar Typestry

To begin a 3-D type design with Typestry, you first type your text into the program's text dialog box, choose a font, and select a bevel style and size. Then you're ready to begin manipulating the type in the program's main window. Editing tools for rotating, scaling, and extruding text reside on a simple palette. For more-precise manipulation, you can enter numeric values for the degree of rotation as well as for the percent of scaling and extrusion.

If you're working with multiple characters, you can easily group them and create hierarchies that let you manipulate not only groups of characters but also groups of character faces and sides. Moreover, double-clicking on a single character in a text block gives you the ability to set its attributes without affecting the entire block of text.

Once you've set up the text, the real fun begins. One of Typestry's chief strengths is its ability to work with Pixar's RenderMan shaders. The package includes 33 of these shaders, called Looks. Looks include shiny plastic, gold, and hewn stone. You can even alter some Looks by making them transparent or more shiny or by changing their color. Because of the high quality of RenderMan shaders, they look outstanding at any resolution.

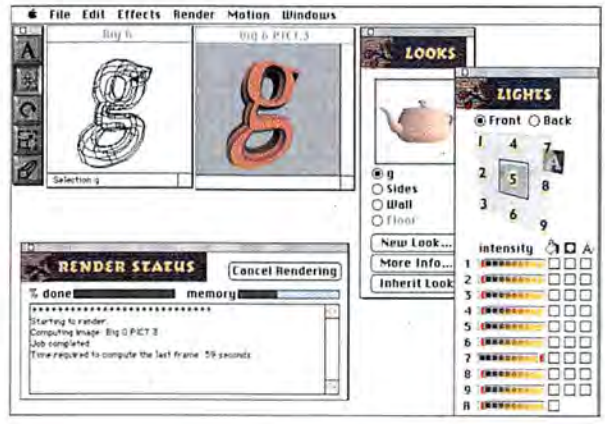
No 3-D design would be complete without backdrop and lighting. Typestry lets you work with a simple wall and floor to add these elements to your type design. You can paint the wall and floor with any Look, so you can use the effect of elegant marble or open sky as a backdrop to your text.

Lighting from both the front and the back further enhances scenes by adding color, shadow, and cool gel effects. Typestry's gels are especially impressive, because they can make light appear to be passing through venetian blinds or a window pane. You select light colors from the standard Apple color wheel, and Typestry provides an excellent selection of shadows. We achieved striking professional-looking highlight effects by activating lights without shadows. Typestry provides 18 lights in all — 9 for front lighting and 9 for back lighting; however, just two well-placed lights can make for a dramatic image.

The final step in creating your 3-D type design is rendering, a time-consuming process no matter what program or platform you're using. Three built-in options let you make trade-offs in speed and quality. On a IIfx, the program can render a small preview image in about five minutes. Print-quality images are better left for long lunch breaks or overnight. Although Typestry is based on mathematical outlines, it outputs images as bit maps.

Typestry also provides a simple key-frame animation system. Although the system requires you to move objects by hand, Pixar includes a motion-blur option that creates effects that must be seen to be believed. Animations are computed frame by frame. At tens of minutes per frame, you can spend days waiting for the final output, even on a Quadra.

Typestry offers a raft of great features, but it's missing several items that are essential to any type program, whether 2-D or 3-D. Kerning, letterspacing, and



Compared with those of full-blown 3-D-design programs, Pixar Typestry's tools for creating 3-D type designs are relatively unintimidating.



You can create stunning special effects and add real depth to 3-D type designs with Pixar Typestry's RenderMan shaders and excellent lighting controls.

justification must all be done by hand. To make matters worse, the program lacks simple copy and paste operations. In addition, it provides none of the guides, rulers, and alignment commands that make text placement easy.

StrataType 3d

If Typestry were to be cast as a full-featured 3-D-set designer, StrataType 3d would play the role of makeup artist. Like Typestry, it provides a simple interface for creating 3-D type effects, but the similarities end there. With StrataType 3d, you can set text on a curve and control extrusion depth with a simple slider. Both of these features are missing in Typestry. StrataType 3d also lets you draw your own bevels, using familiar Bézier curves (17 preset bevels are available, in case you're not up to creating your own).

In addition, StrataType 3d offers more options and flexibility for embellishing type than Typestry does. The package includes metallic textures as well as marble, wood, and granite. As with Typestry, all textures are editable. But StrataType 3d also lets you map PICT images to your type, so you can create your own textures with painting programs or with scanned images. In fact, the StrataType 3d wood and brick textures included in the package were created from scanned photos of actual surfaces, and they tile perfectly across 3-D objects. To create your own textures with Typestry, you must purchase a separate program called LabelMaker from Pixar.

StrataType 3d also lets you apply different textures to the front, bevels, and sides of extruded objects. As a result, you can create professional-looking effects, such as type with a matte front and sides and bevels of shiny chrome.

Despite these strengths, however, StrataType 3d suffers from several major weaknesses. Once you've entered your type, you can manipulate it only as a single block of text. You can't select a character or group of characters within the block. Without direct access to individual characters, your creative options are limited, and if your letterspacing is wrong, you can't kern the type.

When it comes to lighting your 3-D design, you'll discover another major weakness. StrataType 3d provides only a single light source, which severely limits the effects you can create. To add real depth to images, for example, you must be able to illuminate them from the side or the back as well as from the front.



Despite special features such as the ability to apply different textures to the front, bevels, and sides of extruded objects, StrataType 3d provides only a single light source and it doesn't allow characters to be manipulated individually.

Once you've applied all the cosmetic touches to your type and set up the lighting, it's time to render. StrataType 3d's Camera tool lets you take snapshots of parts of your image for rendering, so you can get an idea of how a particular texture will look without going through the time-consuming process of rendering the entire image. As with Typestry, you're given several options for rendering at different speeds and quality. In sharp contrast to Typestry, with its multistep rendering controls, StrataType 3d provides a single dialog box that displays all the program's rendering controls — a much more convenient approach.

Unfortunately, once your image has been rendered and printed, you'll find that StrataType 3d's output falls short of that of Typestry. Anti-aliasing, for example, is only mediocre — even high-resolution output suffers from a slight stair-step effect.

You need at least a Mac IIci and 8 megabytes of memory for smooth operation of StrataType 3d and Pixar Typestry.

The Bottom Line

Even though Typestry lacks several basic tools for type design, it gets high marks for its exceptional output. In addition, its RenderMan shaders, cool gel effects, and motion-blurred animation let you create stunning special effects.

By contrast, StrataType 3d's designs seem lackluster. Although the program's good-looking textures, excellent beveling controls, and ability to set type on a curve are noteworthy, these features are offset by several shortcomings. The program's single light source is inadequate for adding pizzazz and depth to 3-D images. Moreover, StrataType 3d doesn't let you manipulate individual characters within text blocks and its output quality is not on a par with Typestry's.

— Sean Safreed

Get Info

Pixar Typestry

$$$$

Published by: Pixar, 1001 W. Cutting Blvd., Richmond, CA 94804; 510-236-4000.
Version: 1.0.
List Price: $299.

StrataType 3d

$$$

Published by: Strata, Inc., 2 W. St. George Blvd., Ancestor Square, Suite 2100, St. George, UT 84770; 801-628-5218.
Version: 1.0.
List Price: $295.

DRAWING

IntelliDraw

IntelliDraw breaks new ground in the drawing-software arena.



IntelliDraw introduces several innovative features to the drawing-software category. The program's Symmetrigon tool lets you create symmetrical shapes, such as those shown here, with just a few mouse clicks.

Every once in a while, a new product comes along that redefines an entire software category. Aldus' IntelliDraw introduces several unique and innovative features that not only make complex drawing tasks easy but also eliminate much of the tedium associated with mundane operations. The program is aimed squarely at the vast number of new Mac users, although even experienced graphic designers may appreciate the time and effort they'll save when it comes to modifying complex drawings and creating symmetrical objects.

Smart

IntelliDraw comes with all the standard tools you expect in a drawing program. It also provides several animation and blended-fill effects as well as support for multipage documents with linked text boxes (qualifying it as a poor-man's page-layout program). But what makes IntelliDraw special is its ability to create "intelligent" drawings that rely on relationships, or links, that users create between objects. The program lets you link almost any object property to the property of any other object, and it maintains the links as you make modifications to your drawings.

A good example of the usefulness of IntelliDraw's links is the way the program handles aligned objects. The program displays guidelines that let you quickly align the center, edge, corner, or vertices of one object to those of another. This is similar to the way Smart Cursor in Deneba's Canvas works, but the difference is that a Keep Alignment command lets you preserve the alignments between objects as you move or edit them.

Similarly, other drawing programs let you connect objects with lines, but IntelliDraw maintains the connecting lines even when you move one or both of the objects. These two features alone can save time you would otherwise spend manually redrawing large sections of complex drawings when key elements change. They also make IntelliDraw versatile enough to handle organizational charts and floor plans.

IntelliDraw has other smart features too. After you've created a drawing, if you select a different line or fill type from the program's floating palettes, IntelliDraw will automatically update all the items in the drawing that are affected by your change. An impressive tool called the Symmetrigon lets you create symmetrical shapes with just a few mouse clicks. The tool works by creating a mirror image of any shape you draw.

Not So Smart

Its ground-breaking features aside, IntelliDraw is not without flaws. Many users will tire of its ineffective PolyShape tool, which makes it virtually impossible to fine-tune curved shapes. And although you can link text to flow among multiple objects and pages for simple DTP projects, you can't kern and track type. Moreover, although IntelliDraw can convert type into outlines, because it uses off-line control points similar to those used in the original MacDraw, its outlines are virtually uneditable. In addition, you can export your drawings as EPS files but you can't open and edit them with other drawing programs.

One final weakness is the flip side of IntelliDraw's greatest strength — its links. Because you can easily create powerful and sophisticated links between objects, it becomes all too easy to create drawings with so many redundant and conflicting links that the program chokes. Odd things begin to happen — dragging an object in one part of a drawing, for example, can send another object flying off the page. IntelliDraw's links are powerful, but to become proficient at using them, you have to master the program's Links Browser window, which provides an editable graphic representation of the objects and links in a drawing. Mastering the Links Browser is no easy task, especially because it's barely mentioned in the documentation.

The Bottom Line

At $299, IntelliDraw is priced right for entry-level users, and its innovative features can automate many tasks that frustrate inexperienced users of other drawing programs. Even advanced users may find some of IntelliDraw's tools a valuable addition to their technical-drawing kits. Overall, however, IntelliDraw's inability to export editable EPS files to other programs greatly limits its appeal to professional users, as does its lack of a real pen tool.

If you're working in a mixed-platform environment of PCs and Macs, IntelliDraw's cross-platform status may be an enticing asset — you can easily share files between the Windows and Mac versions of the program.

Drawing conclusions about IntelliDraw is easy — it's an exciting drawing-software product that few budding graphic artists will want to be without.

— Eric Taub

Get Info

IntelliDraw

★★★★

Published by: Aldus Corp, 9770 Carroll Center Road, Suite J, San Diego, CA 92126; 206-628-2320 (Seattle number).
Version: 1.0.
List Price: $299.

Managing Your Money 5.0

Enhanced flexibility, speedier operation, and aggressive pricing mark the latest update to MYM.

If managing your personal finances entails more than balancing your checkbook, you may find that Andrew Tobias' Managing Your Money (MYM) is the best financial assistant you can hire. In addition to helping with check writing and budgeting, MYM can assist in tax, insurance, and retirement planning as well as with portfolio management and net-worth tracking. The new version, 5.0, sports a Quicken 3 import facility and several automated features that save you time and effort. In addition, MECA has slashed MYM's price from more than $200 to less than $100.

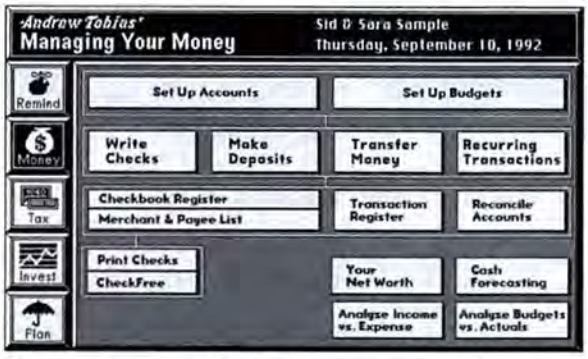
MYM 5.0 includes tax tables for both 1992 and 1993, and you can choose either when asking the program's Tax module to project tax liabilities. The new version also provides optional password protection, so you can keep your financial records secure. Another enhancement lets you sort items in the Reconcile Accounts screen either by check number or by date. To simplify dividend reinvestment, the new version lets you set up automatic reinvestment of dividends and interest. In addition, you can now distribute dividend income on a per-share or a lump-sum basis.

Several of MYM's basic operations have been streamlined in the new version. Saving your work no longer causes all open windows to close, sending you back to the main navigator window. The scroll bar defaults to the end of a specified range in the Checkbook and Transaction registers, so you're always looking at your most recent transactions. The Budget Shortcuts screen, which simplifies budgeting for income and expense categories, has been redesigned so that when you enter new amounts midway through the year, only future months are affected (the previous version reset budget amounts prior to the changes to zero).

If you're a Quicken 3 user whose financial needs have grown beyond basic account balancing, you'll welcome MYM 5.0's new Quicken 3 import facility. The program can automatically match Quicken 3 accounts and categories with those of MYM. Version 5.0 is also designed to work smoothly with TaxCut, a new tax-preparation package MECA will release by year's end. You can export your MYM files in TXF format for direct import into TaxCut.

If you print payroll checks or allocation splits, you'll appreciate version 5.0's ability to print multiple budget allocations on check stubs, making record keeping easier. In addition, version 5.0 supports four additional check formats (available from Deluxe Business Forms).

Last, version 5.0 speeds the process of analyzing open positions by security. The program lets you view the total number of shares on-screen, so you don't have to go through the previous version's time-consuming process of printing a report.



Managing Your Money 5.0 is the most comprehensive personal-finance package you can buy. In addition to bank-account balancing and check writing, the program handles portfolio management and net-worth tracking.

Like all good checkbook programs, MYM has you enter recurring transactions just once. Also, because both the Tax and the Plan modules in MYM can predict future financial scenarios by combining all current data with assumptions about future income and expenses, MYM encourages users to plan their finances by creating what-if scenarios. Any changes you make are temporary, and values revert to their original amounts when you reopen the Tax and Plan modules.

In addition to its financial-planning features, the Plan module includes several useful calculation windows that determine bond yields, present and future values, and effective yields (when you know the interest rate). The module also adjusts dollar values for specified inflation or deflation rates over time.

The bank accounts you maintain in MYM's Money module don't change value until you've entered a specific transaction. In the program's Invest module, however, account values are in a constant state of flux as the prices of your securities, metals, and collectibles rise and fall. To keep these accounts current, of course, you must periodically update their prices manually, which can be time-consuming if you manage a large stock portfolio. Because stock prices are available from popular on-line services, it would be nice if you could have MYM download current prices automatically.

The Bottom Line

MYM's extensive financial-analysis and reporting capabilities make it the ideal program for serious investors — whether their assets include real estate, stocks and bonds, precious metals, or fine art. Not only does MYM make it easy to track current financial worth but it also projects future income, expenses, and tax liabilities. For those who've been losing sleep wondering where their money's going and how hard their investments are working, MYM beats any sleeping potion they can buy.

— Darryl Lewis

Get Info

Managing Your Money 5.0

★★★★½

Published by: MECA Software, Inc., 55 Walls Drive, P.O. Box 912, Fairfield, CT 06430; 203-256-5000.
Version: 5.0.
List Price: $79.95.

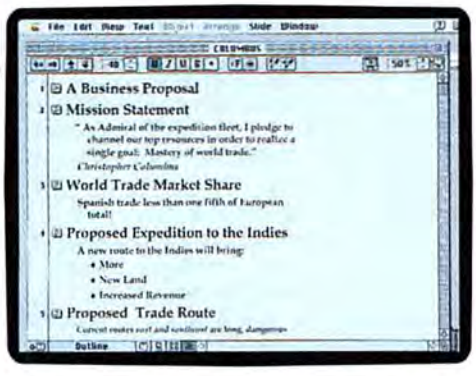
New PowerPoint 3.0 tools make power



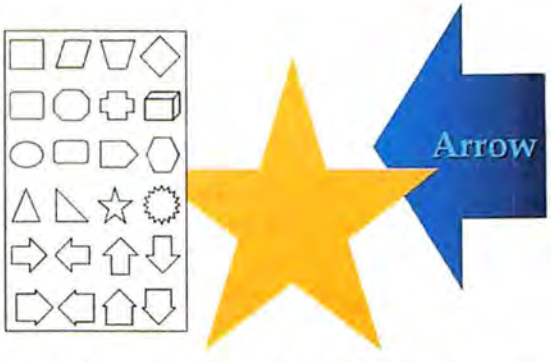
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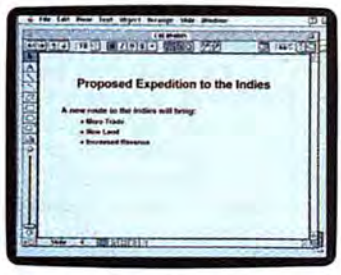
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CAD

Generic CADD 2.0

Generic CADD 2.0 is precise and easy to use, but its file exchange with AutoCAD is one-way.

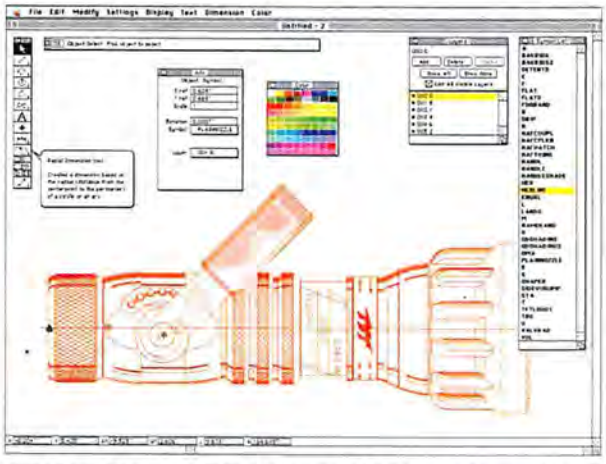
With an overhauled interface and the ability to read AutoCAD files directly, Generic CADD 2.0 offers Mac CAD users a powerful, easy-to-use package at an affordable price. Among Mac 2-D CAD packages priced less than $1,000, Generic CADD 2.0 is the only one to provide a floating-point database for precision drawing. However, its ability to work with AutoCAD files is not quite the complete file-exchange solution that Autodesk is promoting.

Like most other CAD packages for the Mac in its price range, Generic CADD 2.0 is a QuickDraw-based application. At its core is a high-precision floating-point database that provides a virtually unlimited drawing environment with powerful zoom capabilities. Architects can easily show the nail heads on layouts that span city blocks. Such precision makes Generic CADD an outstanding value, especially when you consider that it's priced several hundred dollars less than competing packages, such as Claris CAD and PowerDraw, which don't offer this feature.

Generic CADD 2.0's high-precision database also gives the package its unique ability to open AutoCAD .DWG files so users can view or modify AutoCAD files without first converting them. However, Autodesk's current file-exchange scheme has several catches. First, because Generic CADD 2.0 is a 2-D program, it can't read AutoCAD 3-D information. Furthermore, file exchange is currently a one-way street, because Generic CADD can't save files in the .DWG format. Users must convert Generic CADD 2.0 documents destined for AutoCAD to the less desirable DXF format. A translator is supplied with Generic CADD to do the DXF conversion as well as to translate files between the Mac and DOS versions of Generic CADD.

Generic CADD 2.0 can open PICT files, including the color and bit-mapped varieties, and it can save documents in PICT or EPS format. This feature makes Generic CADD 2.0 a true bargain for users who want to incorporate CAD graphics into word-processing, presentation, or page-layout applications.

Generic CADD's new interface, which sports floating menus, Clipboard support, and customizable dialog boxes, makes the program easy to learn and use. The program's floating tool palette provides pop-up selections for creating lines, arcs, circles, and dimensions. At the bottom of the palette is a selection of geometric modifiers, including endpoint, midpoint, and tangent modifiers. Window controls, such as fit and zoom, are also located on the palette. The only interface complaint we have is that dimensioning and tolerancing controls are located in a dialog box rather than in a palette, which makes them harder to access.



Autodesk has overhauled Generic CADD's interface, with impressive results. The package offers the unique ability to open AutoCAD .DWG files directly.

Although Generic CADD 2.0 doesn't offer an intelligent user interface for constructing and placing geometric objects, as do Claris CAD and Ashlar Vellum, it does offer AutoSnap, a feature that automatically snaps objects to key points such as endpoints and circle and arc centers. AutoSnap also constrains the placement of points horizontally and vertically.

Some user-interface elements, such as the Info windoid and the coordinate area, are similar to those of Claris CAD, which has long been a paradigm for CAD interface design. However, other elements, such as the unobtrusive Message line, are more representative of traditional CAD programs. To its credit, Autodesk has done a good job of integrating the old elements with the new. Moreover, the Message line is particularly valuable for prompting users performing multistep operations, and it lets users enter two-character command-code shortcuts at any time during a drawing session.

Generic CADD 2.0 runs on all Macs with a minimum of 2 megabytes of RAM and a hard disk. For System 7 users, however, we recommend 4 megabytes of RAM and a math coprocessor.

Included in the Generic CADD package is Microspot's MacPlot plotter driver as well as an extensive symbol library (offered as a costly option with other CAD programs) containing nearly 2,400 mechanical, architectural, electrical, schematic, LAN, welding, hydraulic, piping, and HVAC symbols.

The Bottom Line

Autodesk has some wrinkles to iron out when it comes to Generic CADD's ability to exchange files with AutoCAD. Still, its ability to read the .DWG format directly is a big plus for AutoCAD environments. Generic CADD 2.0 lacks some of the advanced features of its competitors, such as an intelligent interface and a programming language, but for the price, no package can come close to its consistency of operation, precision, ease of use, and dollar value.

— James K. Anders

Get Info

Generic CADD 2.0

$$$$

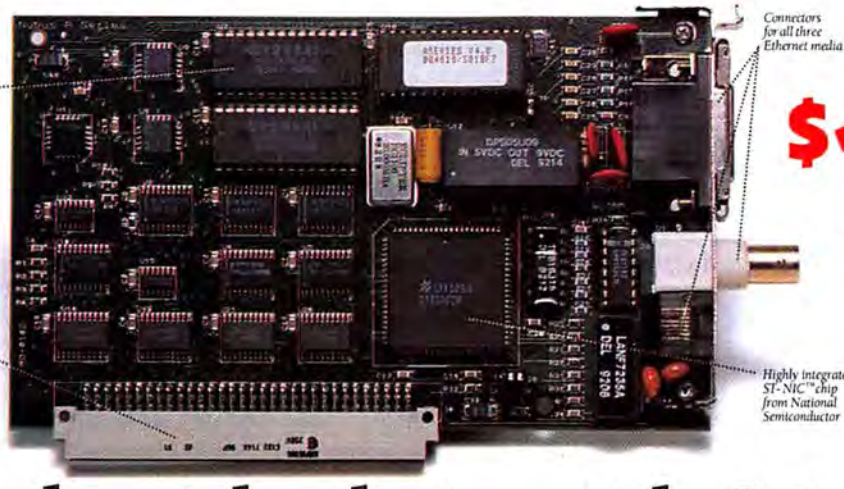
Published by: Autodesk Retail Products, 11911 N. Creek Parkway S., Bothell, WA 98011; 800-228-3601 or 206-487-2233.
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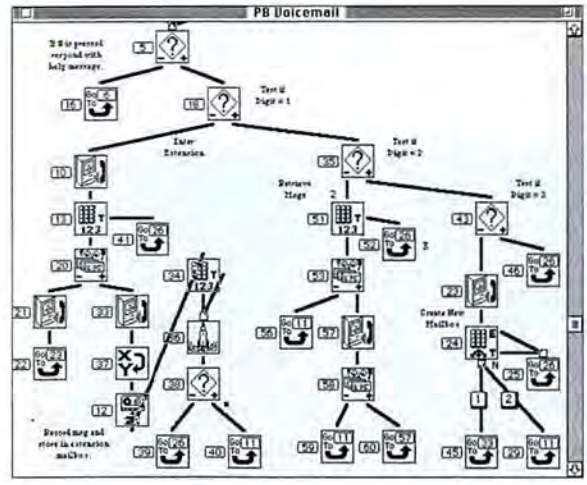
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COMMUNICATIONS

PhonePro

Do-it-yourself Mac-based voice-mail systems with links to E-mail are PhonePro's claim to fame.



With PhonePro, you string icons together to create custom voice-mail systems. Unfortunately, the first release lacks essential features such as support for time-based events and the ability to send faxes.

PhonePro is a programmable voice-mail system that currently promises more than it delivers. Providing a novel integration of sound and the Mac, PhonePro lets users with minimal programming experience develop custom voice-mail systems that are more flexible than expensive dedicated systems. PhonePro's chief claim to fame is its unique ability to record phone messages and forward them to E-mail systems. However, before you get your wallet out, be forewarned: Several essential features are missing from the initial release.

The PhonePro system comprises software, a special modem, a headset, and a manual. The modem, which plugs in to the Mac's serial port, digitizes and plays back sound received over phone lines. The modem can also connect to an analog PBX or key system or to Apple's ISDN NuBus card. The headset plugs in to the modem, so you can digitize messages for playback.

PhonePro requires System 7, at least 4 megabytes of RAM, and a hard drive. The PhonePro application, ancillary utilities, examples, and sound files take up about 2 megabytes of disk space, but you'll want to reserve plenty of room for voice-mail messages, because sound is recorded at the rate of 4K per second.

To create custom voice-mail applications, you develop scripts with PhonePro's icon-based programming language. Each icon represents a specific action, such as answering the phone or playing a message. To build applications, you drag the icons from a palette, configure them, and chain them together. The PhonePro software lets you test, simulate, and run scripts.

Although programming experience is not required, you'll need at least a day to become proficient at creating scripts. Example scripts are essential for learning PhonePro, but unfortunately, none are included in the initial release. For our tests, we used prerelease copies of scripts that will be included in an upgrade that will probably be available by the time this review appears.

Learning to use PhonePro is about as difficult as learning to develop a sophisticated FileMaker Pro application or a simple HyperCard stack, although programming experience is helpful if you're developing complex voice-mail systems.

Although several key PhonePro features are waiting in the wings, the current version can forward voice messages over a LAN to an E-mail system. If you don't already have E-mail, PhonePro comes with a built-in bare-bones system that lets you take advantage of this feature. In addition, it can digitize and save voice messages, reply with digitized messages you've created, recognize and branch on or save touch-tone inputs, transfer calls, search and retrieve information from a database, and calculate and branch on text or numeric values saved in database files.

We tested version 1.02, which lacks several essential features. In addition to example scripts, the current version can't send faxes, and it doesn't fully support Apple events. Furthermore, the scripting window is too small to accommodate elaborate scripts, and the software doesn't support time-scheduled events. These features are essential for setting up telephone-based applications such as automated fax-response systems or credit-card-verification programs.

PhonePro's only competition is Magnum Software's TFLX programmable voice-mail system, which also uses an icon-based programming language. In comparison, the PhonePro development environment is easier to use, although the TFLX package includes more features than PhonePro's first iteration, including example scripts, support for time-scheduled events, and the ability to send faxes. But PhonePro's capabilities may be more easily extended, because of its support for Apple's Telephone Manager (a set of predefined calls) and System 7-specific features such as Apple events.

The Bottom Line

Although the premier release of PhonePro is more tantalizing than satisfying — due to several missing elements that are promised in an upgrade — the system's ability to record phone messages and forward them to E-mail is truly unique. If you're looking to develop a custom telephony application such as a sophisticated voice-mail system or an after-hours voice-response system, PhonePro may be a good choice. However, be sure you're getting the release that provides example scripts and includes support for time-scheduled events and the ability to send faxes.

— Peter Baum

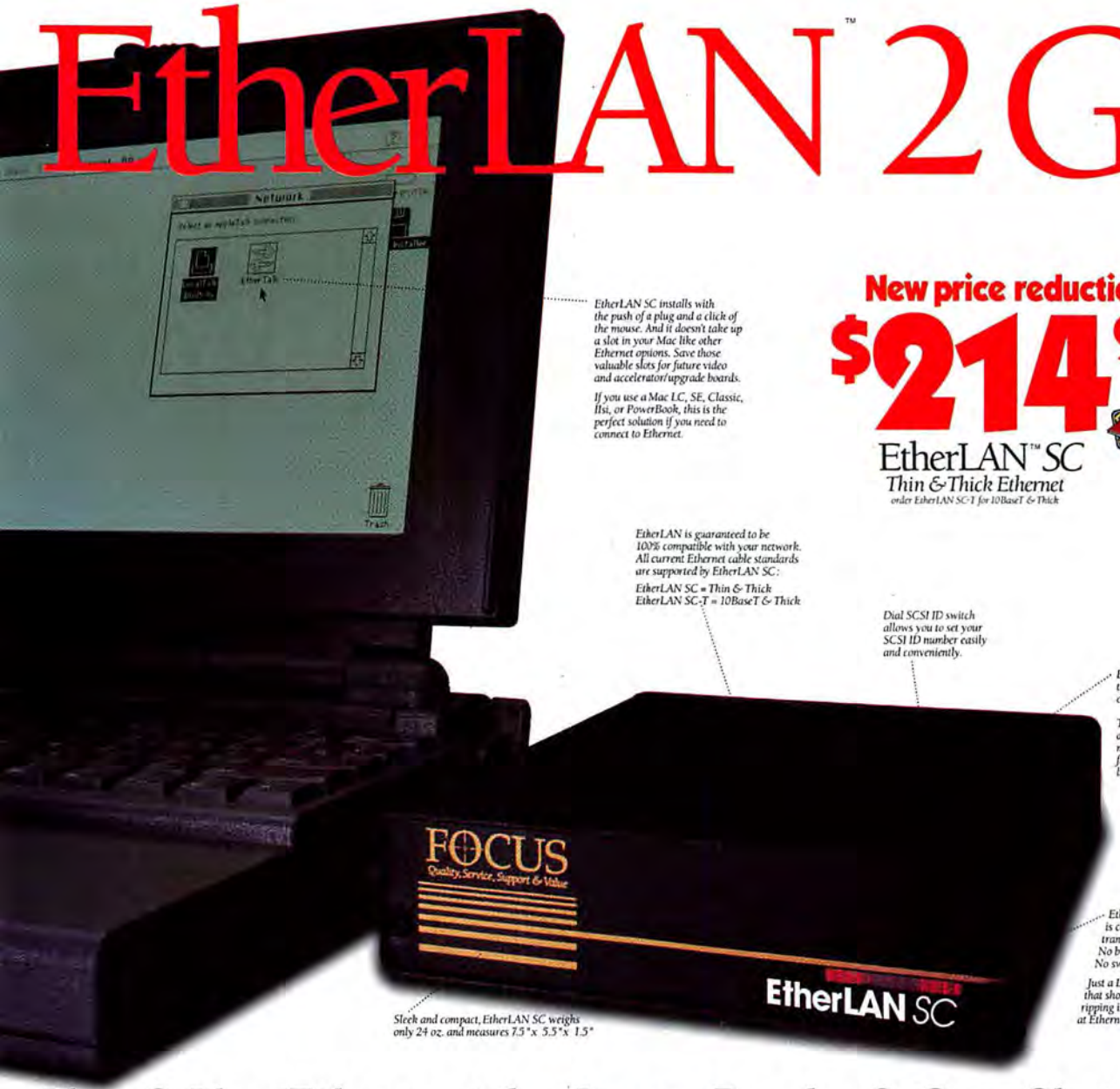
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PhonePro

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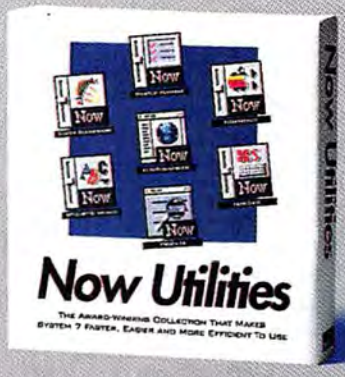
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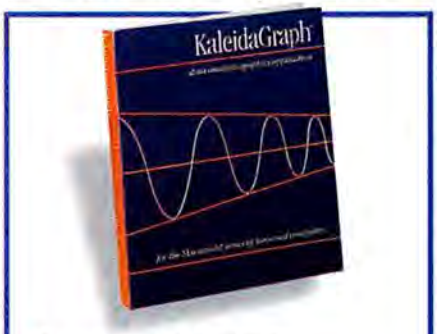
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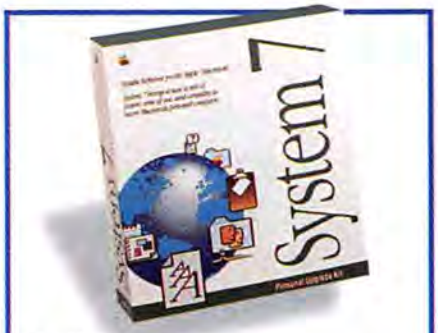
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3413 ❼System 7 Group Upgrade Kit..... 249.
7072 ❼QuickTime Starter Kit 149.

★ASD Software ... 30 day MBG

7085 ❼FileGuard 2.7 *(1 user)* 138.

★Baseline Publishing ... 30 day MBG

7783 ❼INIT Manager 33. 3114❼DiagnoSYS 39.

★Berkeley Systems ... 30 day MBG

2198 ❼More After Dark *(M.A.D.)*..... 23.
5737 ❼After Dark 2.0V 28.
2196 ❼After Dark & M.A.D. Bundle..... 39.
3392 ❼Star Trek: The Screen Saver..... 34.

★Casa Blanca Works ... 30 day MBG

1593 ❼Drive 7 2.3 49.

★CE Software ... 60 day MBG

1727 ❼CalendarMaker 3.0.1 31.
8024 ❼QuicKeys² 2.1.2 89.

★Central Point ... 30 day MBG

5041 ❼Mac Tools Deluxe..... 99.

★Claris ... 30 day MBG

8734 ❼HyperCard Development Kit 2.1..... 139.

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7310 ❼TimeLog.... 62. 7309 *(10 Pack)*.... 399.

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3393 ❼DiskFit Pro 1.0 72.
5255 ❼Retrospect 147. 7945 ❼Remote 1.3 264.
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8286 ❼SuperLaserSpool 3.0..... 99.
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1744 ❼Icon 7..... 31. 9843 ❼InSync 1.0.... 79.
7068 ❼INITPicker 3.0 *(Oct. '92)*..... 38.
2913 ❼Redux 1.63.... 49. 1740 Deluxe..... 92.

★Kent Marsh Ltd. ... 30 day MBG

9513 ❼FolderBolt 1.02 71.

★Kiwi Software ... 60 day MBG

6267 ❼KiwiENVELOPES! 3.1.6 32.

★Magic Software ... 30 day MBG

7267 ❼AutoSave II 26. 7270 ❼Backmatic.. 50.

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★Microcom ... 30 day MBG
4803 ❼Virex/Mac.. 66. 8561 ❼911 Utilities .. 99.
★MicroMat Computer Sys. ... 30 day MBG
3732 ❼MacEKG II 2.0 89.
★Microspot ... 30 day MBG
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8782 ❼MacPlot Professional 249.
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1793 ❼Now Up-To-Date... 65. 2366 *(10)*. 395.
6925 ❼Now Utilities 4.0.... 95. 8471 *(10)*. 775.
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8210 ❼PLOTTERgeist 2.1 249.
Peripheral Land, Inc. (PLI)
7326 Mac-to-DOS 3.0 99.
Pluma, Inc.
8704 ❼Cause or 8713 ❼Net Effect *ea.* 185.



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6748 ❼Norton Utilities for Mac 2.0 95.
3421 ❼THINK Pascal 165. 2688 ❼THINK C 199.
9957 ❼THINK Reference 1.0 68.
Teknosys
5203 ❼HELP! 88.
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6667 ❼Prograph 2.5 299.
★Thought I Could ... 30 day MBG
4843 ❼Wallpaper 1.0.2 37.
UserLand Software
4753 ❼Frontier 1.0 189.
★Utilitron, Inc. ... 30 day MBG
9816 ❼Guaranteed Undelete w/TrashMaster 45.

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2470 ❼Lost Treasures of InfocomVol. II..... 29.
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★Baseline Publishing ... 30 day MBG
7785 ❼Talking Moose 4.0.2 22.
Broderbund Software
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❼Carmen Sandiego Series *(CP)*..... *ea.* 29.
8285 ❼Where/World Carmen Sandiego Deluxe 47.
3559 ❼SimAnt or 5871❼SimCity Supreme. *ea.* 35.
8266 ❼SimEarth 1.1 40.
1910 ❼SimLife.... 41. 3307 ❼A-Train.... 39.
Buena Vista Software
1711 ❼Heaven and Earth 29.
★Centron Software ... 30 day MBG
2707 ❼Puzzle Master 26.
5910 ❼Crossword Creator 39.
8525 ❼Casino Master... 39. 8524 *(Color)*.... 45.
Colorado Spectrum
2554 Mouse Yolk 29.
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6320 ❼Manhole 1.6 19.
★Davidson & Associates ... 30 day MBG
3922 ❼Talking Spell It Plus 29.
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8278 ❼Alge-Blaster Plus 34.
Delta Tao Software
2536 ❼Spaceward Ho! or 2439 ❼Strategic Conq. 36.
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8050 ❼EARTHQUEST or 3118 ❼Ecology 1.0 34.
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5702 ❼4D Boxing.... 32. 1907 ❼PGA Golf.. 39.
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6219 ❼Expert Astronomer 1.0 29.
Graphic Simulations
4756 ❼Hellcats Over the Pacific 1.0.3 39.
★Great Wave ... 30 day MBG
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6693 ❼KidsMath 2.0 or 2276 Kid's Time.. *ea.* 25.
4334 ❼NumberMaze.. 25. 8527 ❼*(Color)*.. 35.
1513 ❼ReadingMaze *(Color)* 35.
3471 ❼DaisyQuest 35.
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(French, German, Italian & Spanish)
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(Span., Fren.) ea. 32. *(Germ., Chin.) ea.* 38.



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Interplay Productions
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3687 ❼Super Solvers: Midnight Rescue! 34.
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★MECC ... 30 day MBG
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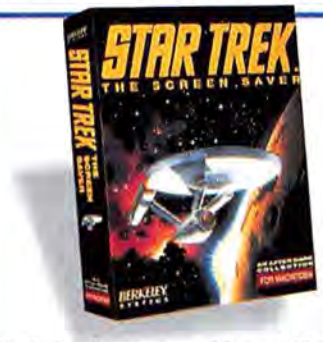


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2934 ❼Spectre... 34. 5280 ❼LAN 3-Pak... 57.

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Creative Multimedia Corp.
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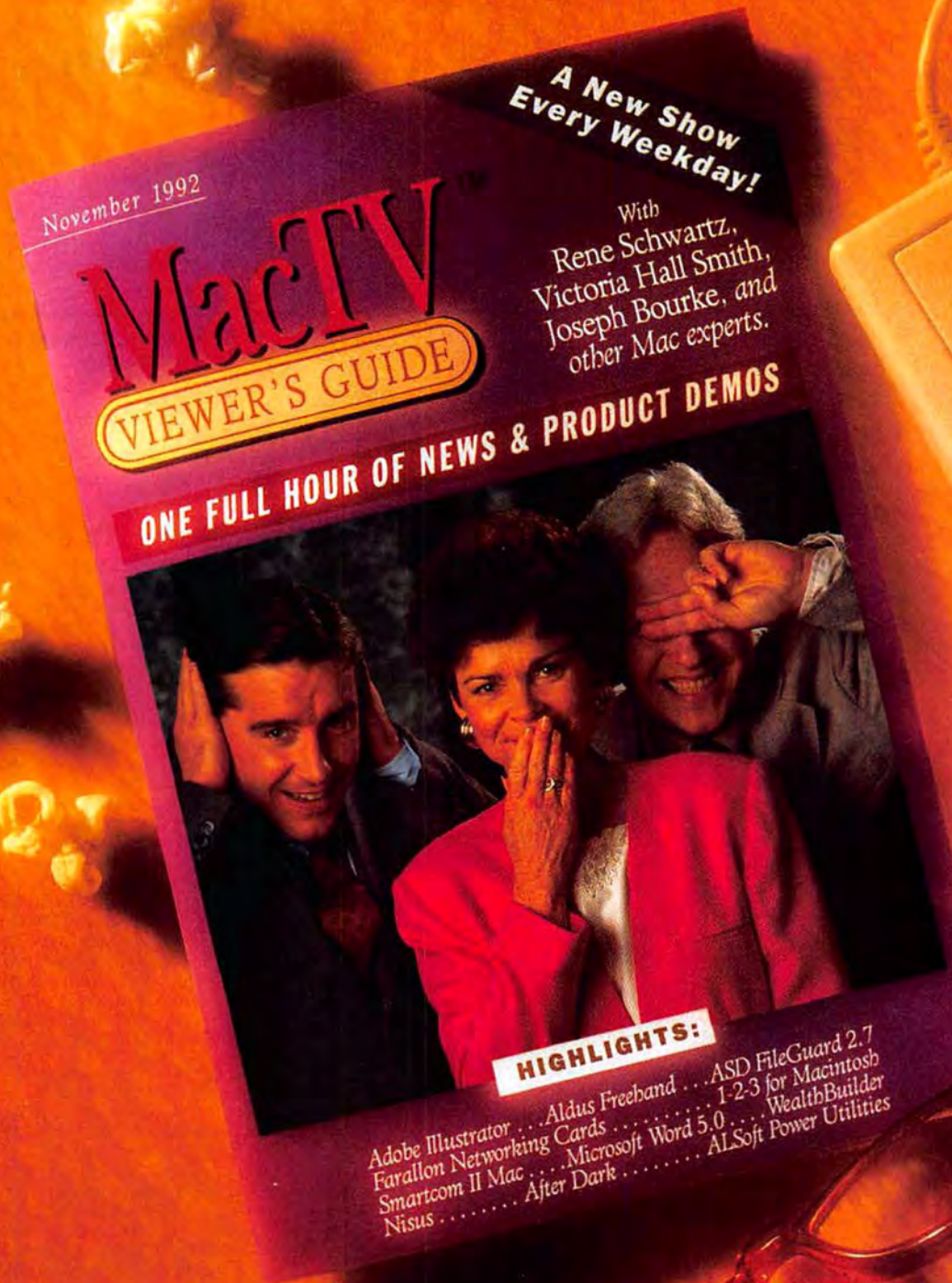
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1909 DiamondDrive 1000 2199.
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4863 3½" HD Disks *(20)* with storage case 26.
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5530 88 MB Cartridge *(5)* ... 480. 3600 *(10)* 950.

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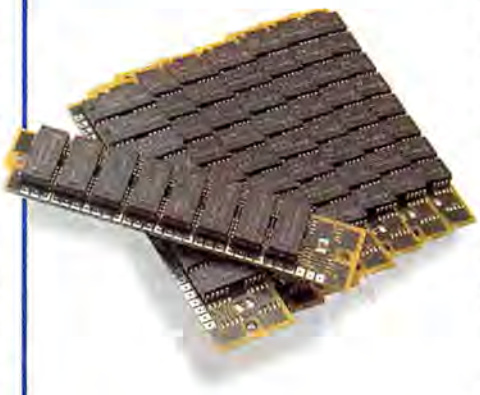
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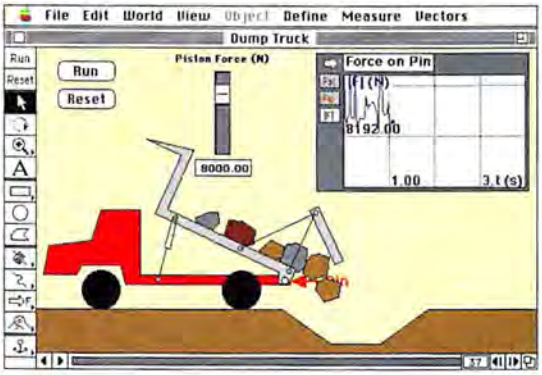
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EDUCATION

Interactive Physics II

Knowledge Revolution's simulation tool breathes life into high-school and college physics experiments.



Interactive Physics II simulates complex motion experiments on the Mac, making it invaluable for students and teachers of high-school and college physics.

Interactive Physics II brings powerful simulation capabilities to the Mac. The 2-D program, which lets users model mechanical and electrostatic systems based on the laws of physics, is an invaluable supplement to high-school and college physics courses as well as a useful tool for scientists, engineers, and basement mechanics.

Moving Experiments

Interactive Physics II lets users set up experiments quickly and observe the results under a variety of conditions. The program calculates motion based on user-defined parameters and displays it as animated sequences. Although it's not a substitute for actual laboratory sessions, Interactive Physics II is a perfect complement to them, because it stresses what-if scenarios. For example, students can easily simulate the Earth's orbit around the Sun and observe how changes in the Sun's mass affect the orbit.

Interactive Physics II is an extensively revamped version of Knowledge Revolution's first Interactive Physics package (renamed Fun Physics). Interactive Physics II contains numerous enhancements, including support for electrostatic, magnetic, and user-definable forces; spreadsheetlike equation processing; on-screen sliders and buttons; and an expanded toolbox of actuators, pulleys, motors, and springs.

To use Interactive Physics II, you drag graphic objects (rectangles, ovals, or polygons) from the program's toolbox to an experiment window and assign them properties such as mass and charge. You can also assign constraints and forces to objects as well as world conditions, such as air resistance, gravity, and magnetic and electric fields. Graphs and digital meters let you monitor velocity, acceleration, and angular momentum. Once you've set up a model system, you start the simulation by simply clicking on the Run button.

A generous selection of sample files does a good job of illustrating the power and scope of Interactive Physics II. Samples range from standard student laboratory experiments in linear and rotational motion, simple electromagnetism, and gravity to a set of complex interactive files that demonstrates the program's ability to simulate machinery.

With these samples as a starting point, it's easy and fun to construct elaborate Rube Goldberg contraptions as well as textbook experiments. To enhance the look of simulations, you can import PICT objects through the Clipboard, but your ability to customize objects is rather limited. We'd like to see a more comprehensive set of drawing tools as well as grouping and scaling commands for creating complex objects, such as gears, included in a future release.

Even simple Interactive Physics simulations tend to require an enormous amount of computation, so you'll need a lot of memory, a coprocessor, and a fast machine to achieve acceptable performance. This is especially true when you run a simulation for the first time, because the program is calculating the physics formulas that determine the animation as well as drawing the animation to the screen. Once the simulation data sets have been saved to disk, however, the animation will play faster. You can also export simulations as QuickTime movies.

Additionally, you can make trade-offs in the speed and quality of your simulations by choosing either the Fast or the Accurate mode. In Fast mode, the program executes simple simulations quite well, but there are limitations — colliding objects can appear to overlap, for example.

With the Interactive Physics tape-player controls, you can play experiments backward, move to a specific frame, skip frames altogether, or pause a simulation when a specific condition has been met.

The program's manual gets you going quickly and is thorough in its explanations of the program's many features. However, because Interactive Physics II is not intended as a self-study course, no instructional materials are included, although the program's numerous experiment and demonstration files are well correlated to most high-school and freshman college physics texts.

The Bottom Line

Interactive Physics II is an invaluable tool for students as well as teachers of high-school and college-level physics. By bringing physics experiments to life with simulations that are easily altered to create what-if scenarios, the program is an excellent complement to laboratory sessions. For those who have struggled to visualize or illustrate the concepts behind complex physics formulas, Interactive Physics II will be a godsend.

— Steve Shepard

Get Info

Interactive Physics II

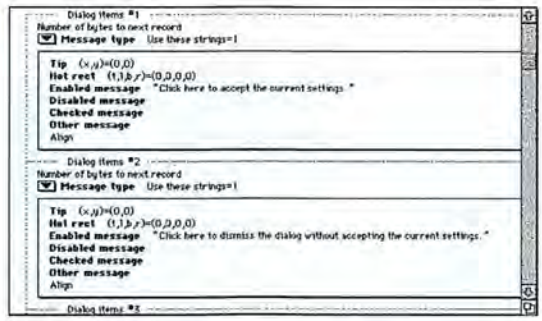
★★★★½

Published by: Knowledge Revolution, 15 Brush Place, San Francisco, CA 94103; 415-553-8153.
Version: 1.0.
List Price: $399.

PROGRAMMING

Resorcerer

Resorcerer is a time-saver no developer or hard-core resource editor should be without.



Unlike Apple's give-away resource editor, ResEdit, Resorcerer costs money, but its extensive features make it worth every penny if you edit resources regularly. Shown here are Resorcerer's templates for editing Balloon Help resources.

Resorcerer is a $256 resource-editing tool from Mathemæsthetics that goes head to head against ResEdit, Apple's give-away resource editor. Competing against a freebie is no enviable task, but if you're a developer or a user who spends a lot of time customizing your Mac environment, you'll find that Resorcerer quickly earns its keep.

To be truly successful, a resource-editing package must provide a consistent environment for many editors that are specific to particular resource types. Resorcerer fills the bill with an array of well-thought-out editors, most of which are far superior to ResEdit's.

Dialog Editor

Resorcerer's dialog editor is for designing dialog boxes and their contents. Once you've laid out the individual items in a dialog box, you can "test drive" the box and view item numbers and their state (enabled or disabled) by clicking on them. If you haven't numbered items properly, Resorcerer lets you easily renumber one, several, or all of them. One feature that will be particularly useful to developers of System 7-savvy software is the one that lets you add Balloon Help to items from within the Resorcerer dialog editor without additional tools or INITs.

Resorcerer also provides a hex/code editor for resource data that lacks a template or its own custom editor. The hex/code-editor window displays resource data in hex as well as ASCII format. As with any standard editor, you can edit in both window panes and copy and paste data. If the data is 680X0 code, the editor can disassemble the code, interpret Macsbug symbols, and let you spelunk around within the code easily. The disassembler window is divided into four columns: one displays symbols and offsets, another the actual disassembly, a third the hex representation of the data, and the fourth the ASCII representation. You can also apply the editor to a file's data fork.

Because the hex/code editor doesn't contain an assembler, you can't edit the assembly language directly. But you can edit in the hex and the ASCII columns, and your changes are immediately reflected in the disassembly column. Menu items in the editor let you replace a selection with NOPs (No Operations) or branch around inside the selection from within the editor window, making it easy to apply quick patches.

Worth Contemplating

Resorcerer's templates are another big plus. In general, programmers view and edit most types of resource data with the help of templates, because few resource data types have custom editors. Templates provide the resource-editing tool with information about the contents of specific resource types. The templates for Apple's Installer scripts as well as for Balloon Help resources are excellent examples of how useful Resorcerer's templates are: You can create and edit both of these complex resource types with Resorcerer.

Resorcerer comes with a much wider range of templates than ResEdit does. This is a real boon for Resorcerer users, because they typically won't have to develop new templates unless they're working with custom resource data. Resorcerer also provides an easy-to-configure aliasing scheme, so you can use the same editor or template for several resource types.

In addition to individual editors, the Resorcerer environment offers a wealth of time-saving tools. The Find command, for example, lets you search for data within file resources and gives you the option of limiting the search to particular resource types or even to one specific resource. Users of Apple's MPW (Macintosh Programmer's Workshop) will be happy to know that when a resource is copied to the Clipboard from within Resorcerer, the corresponding source code for Rez (MPW's resource compiler) is automatically generated. In addition, Resorcerer's scripting language, a subset of Rez, enables you to script sets of tasks such as removing specific resources from final builds.

Resorcerer pays close attention to details. For example, it optionally remembers window sizes and positions for each resource type, so you don't have to constantly resize and reposition windows. It also contains a value-converter function that lets you convert among hex, ASCII, and a plethora of other formats and numeric bases.

The Bottom Line

Resorcerer's strengths include a consistent environment, a solid collection of useful editors, and an excellent supply of templates.

If you find yourself dabbling only occasionally with ResEdit, Resorcerer is probably not worth its $256 price tag. However, Resorcerer's extensive features make it well worth the cost for both developers and those who edit resources regularly. For such users, Resorcerer will pay for itself many times over in saved time and effort.

— Stephan Somogyi

Get Info

Resorcerer

★★★★½

Published by: Mathemæsthetics, P.O. Box 156, Chestnut Hill, MA 02167; 617-738-8803.
Version: 1.1.1.
List Price: $256.

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NUMERICAL ANALYSIS

StatView 4.0

Combining statistical analysis, data management, and presentation graphics, StatView 4.0 is a soup-to-nuts statistical package.

What do you get when you roll statistical analysis, data management, and presentation graphics into a single application? StatView 4.0, that's what. Sporting an elegant new interface, StatView offers statisticians a quick and easy route from data manipulation to statistical analysis to presentation-quality output. In addition, the new version offers a level of flexibility for manipulating both data and graphs that far surpasses that of previous versions.

Data Management

StatView 4.0 presents users with two main work environments: the "dataset," for entering and formatting data, and the View window, for analyzing data and creating attractive graphs and reports.

Working with the dataset, you use a spreadsheetlike row-and-column format for entering and manipulating data. Each row represents a record, each column a variable. You can enter data directly into cells or import it from spreadsheet, word-processing, or database programs in text-file format. StatView lets you open multiple datasets simultaneously to view, edit, or even combine analyses.

Setting and modifying variable attributes, such as data type or class, is easy with StatView's attribute pane, an area within the dataset window. Context-sensitive pop-up menus help you select the settings for each variable attribute, and you can expand the pane to show summary statistics for each variable you set up. A formula generator uses a "smart" calculator interface (it knows what variable or function to insert into a formula, based on the first few characters you type) to provide more than 150 functions for data transformation and mathematical manipulation.

StatView handles all standard data-management tasks with ease. In fact, most data-management operations are so intuitive that you'll barely need to refer to the manual.

StatView's variable browser provides a scrolling list that lets you view, find, and select variables from an open dataset quickly, without going to the dataset itself. This feature is particularly handy when you're working with large or multiple datasets or if you're working in the View window and want to get to your variables without switching to the dataset window. Unfortunately, the program lacks a Find command for locating records — a serious omission.

Analysis and Graphing

Once you've entered and formatted your data, you're ready to analyze and graph it in the View window. An analysis browser provides a list of all the analyses and graphs that StatView can produce. The program comes with a wide range of built-in statistical-analysis procedures, from basic descriptive statistics to ANOVA and factor analysis. The new version is also extensible — third-party analyses can simply be dropped into the program's Tools folder.

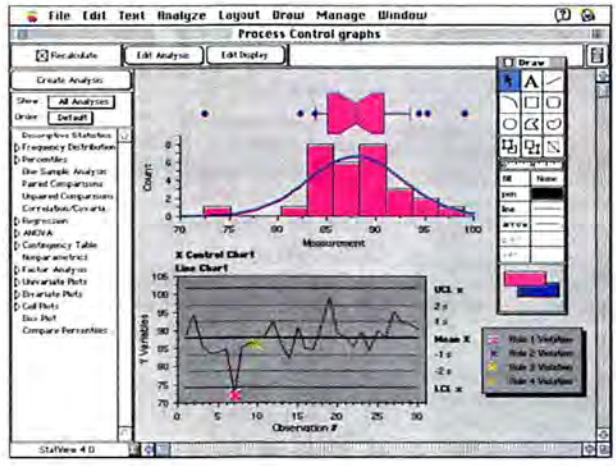
The real beauty of the View window is that its analyses are hot-linked to the data in the dataset. Another plus is the flexibility StatView provides for the analysis process. You can begin by selecting a statistical procedure from the analysis browser or by specifying variables from the variable browser. A third option lets you use a template to create an analysis by simply filling in the blanks in a dialog box.

This flexibility is typical of the new StatView — it doesn't force you to follow a set sequence of procedures. Instead, it lets you work in the manner that's most comfortable for you. Moreover, if you haven't entered enough information to do an analysis, it will even prompt you with suggestions. When you run an analysis, the results appear in table or graph format.

StatView's good-looking graphs have always been a strong point. The program offers a wide selection of graph types, including univariate and bivariate scattergrams and line charts, histograms, and regression plots. However, no 3-D graph types are included, and StatView doesn't provide spinning Tukey-style interactive graphics. For that, you need Abacus Concepts' MacSpin.

The new version lets you move, color, or modify virtually any graph element, but you can't select individual points in a graph and bring up the data they represent, which would be useful. The program also sports a palette of basic drawing tools for adding annotations and embellishing graphs and reports with presentation visuals. You can choose from 64 colors and a small selection of fill patterns.

Overall, StatView's chief graphic emphasis is on providing publication-quality output. Because the View window is essentially a drawing document, you have extensive control over all the elements within it. You can move and

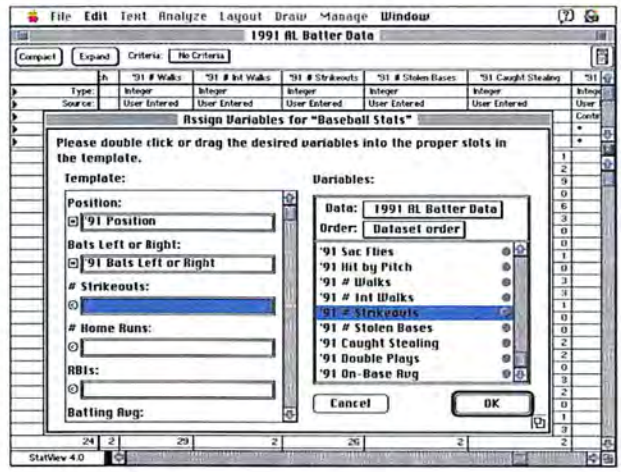


StatView 4.0 can handle the complete statistical-reporting process, from raw data to presentation graphics. In the View window, you can modify virtually every graph element as well as enhance graphs with a set of drawing tools.



NEW ON THE MENU

REVIEWS



StatView 4.0's new templates let you re-create every aspect of an analysis, including data-management tasks, statistical procedures, and document layout.

position elements, including dynamic tables and graphs, anywhere on a page. The Cleanup command automatically repositions tables and graphs to keep them from falling across page breaks, which is useful for multipage documents. You can set all line widths to print at one-fourth their screen width, resulting in clean-looking hairlines on high-resolution printers.

Templates

Another StatView strength is its new templates, which work much like spreadsheet-program macros but are much easier to create. Templates store a complex series of instructions and can re-create an entire analysis process, from statistical tests to the creation of specific document formats. The StatView package supplies several dozen templates, and you can create your own by simply saving any view and placing it in the Templates folder. This feature is especially handy for those who regularly repeat the same analysis or for statisticians who want to create templates for use by nonstatisticians.

StatView's manual is well written and concise. Exercises help explain special features, and an on-disk tutorial provides numerous examples to help get you started. In addition to System 7 Balloon Help, StatView has a context-sensitive floating Hints window that works with both System 6 and System 7. The hints not only explain on-screen features but can also recommend the appropriate actions necessary to complete data-management, analytical, or graphic presentation tasks.

We found StatView's tech-support personnel to be courteous and knowledgeable. They can help with both the program and statistical procedures.

The Bottom Line

With its well-designed interface and near-seamless integration among data management, statistics, graphing, and drawing, StatView 4.0 is a pleasure to use. Although it may not provide as many built-in statistical procedures as do some of its rivals or offer as many types of presentation-quality graphs as a dedicated charting package, it's the only single package that researchers and analysts can use for the entire statistical reporting process, from raw data to statistical analysis to presentation-quality output.

Furthermore, StatView packs plenty of accessible statistical power for most applications. The program's flexibility lets users work in various ways, without imposing a rigid methodology, and the addition of templates is a boon for those who repeat analyses regularly. If you're looking for the most fully functional statistical package, look no further than StatView 4.0.

— Clay Andres

Get Info

StatView 4.0

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Expressionist 3.0 & MathType 3.0

MathType's formula for success over Expressionist is a simple interface for creating and editing mathematical equations.

Until recently, turning mathematical formulas and equations into printed material was a torturous task. Mathematical typesetting implied either compromise or tedious manual labor. Today, however, equation editors have become standard Mac tools for incorporating complex mathematical formulas into reports, dissertations, and scholarly articles. Two recent upgrades to the Mac's best-known equation editors — Expressionist and MathType — seek to provide users with an even smoother path to published formulas and equations.

The Same Cloth

Expressionist 3.0 and MathType 3.0 have more things in common than their version number. Each handles all basic mathematical-formatting tasks, including easy integral input, summations, set-theory symbols, matrices, Greek letters, trigonometric functions, all sorts of delimiters, and a dizzying array of unclassifiable symbols such as the Weierstrass p and Planck's constant. Chemists, geometers, and musicians, on the other hand, won't find their special symbols represented in these packages.

Each program provides a complex palette of symbols and templates for entering advanced mathematical formulas, and users can customize the palettes by adding the symbols and templates they use most frequently. To transfer equations to other programs, Expressionist and MathType support the PICT and EPS formats for exporting, and you can also copy equations to the Clipboard. Additionally, each program lets you convert equations into TeX code so you can further manipulate them in a TeX typesetting program.

You can embed equations from these programs into Microsoft Word documents and then double-click on the equations to edit them. MathType uses Microsoft's OLE (Object Linking and Embedding) standard to integrate into Word, and Expressionist uses its proprietary EGO (Edit Graphic Object) technology. EGO requires you to add an extension to the Word Commands folder. One advantage of the OLE approach is that you can embed equations into Excel as well as Word.

Both programs are System 7-savvy, support Balloon Help, and can work on 1-megabyte Macs under System 6.

Distinctive Tailoring

That's where the similarities end, however. On close inspection, Expressionist and MathType are far from identical. Each program has a distinctive feel, and when it comes to customizable features and ease of use, the two programs are worlds apart.

Expressionist, which you can use as both a DA and an application, was one of the first equation editors for the Mac. Version 3.0 features a redesigned palette, which you can resize and rearrange. Expressionist is by far one of the most customizable programs you can find anywhere. Its nearly 20 dialog boxes, all accessible on the Options menu, let you tinker with defaults and tweak nearly every setting.

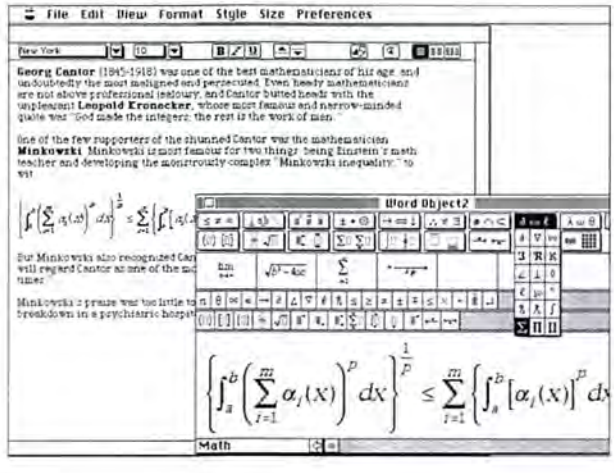
Moreover, once you've placed a formula element, you can click on the Change button to display a context-sensitive dialog box with all the settings applicable to the selected element. Fortunately, Balloon Help works with these dialog boxes — the manual doesn't provide detailed instructions on how to use them.

MathType is best known for the junior version of the program that was licensed to Microsoft and is now shipping in Microsoft Word 5. Word 5 users who want to upgrade to the more fully featured MathType, which works as seamlessly with Word as Equation Editor does, can do so for $89.

MathType also lets you do some customizing (most notably on the Symbols and Templates palettes), but it doesn't come close to Expressionist's level of customizability.

MathType's forte is its ease of use. The program is straightforward and intuitive to operate, its user interface is less cluttered than Expressionist's, the method it employs for entering and editing formulas is natural and streamlined, and its manual is better organized and written than Expressionist's.

A good illustration of the difference in usability between the two programs is the way they let you move through existing equations. In MathType, your insertion point moves to the next element in an equation each time you press Tab. In Expressionist, on the other hand, tabbing moves you through only the elements in small parts of the overall equation; to move through an entire equation, you're forced to use a motley and unintuitive group of palette buttons named Unmark, Select First, Select Next, Select Out, Select In, and Select All. Granted, some



MathType and Expressionist each let you embed equations into Word documents and double-click on the equations to edit them. However, MathType, shown here, features intuitive, well-designed palettes that give it the edge over Expressionist.

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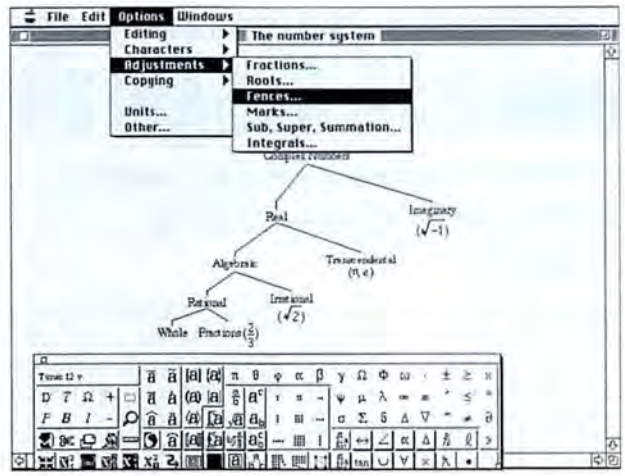


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Expressionist's strengths are its depth of features and level of customizability. The Options menu, shown here, leads to a myriad of customization dialog boxes. Figuring out how to access and use the program's many tools, however, is often frustrating.

of these tools let you pull off amazing, if slightly bizarre, tricks such as simultaneously selecting all the elements of a matrix (complete with multiple insertion points). But overall, figuring out how all these tools work is a daunting task.

Buried Treasures

Clearly, Expressionist is full of hidden treasures, but finding and mastering them may well try the patience of even the most mellow mathematician. Another example: Keyboard command equivalents exist for virtually every setting in every dialog box, but they're undocumented! (You'll find most of them buried under the Editing command on the Options menu.)

Similarly, the program provides more than 150 keystroke shortcuts (all of them editable) for its palette buttons, but the only way to figure them out is to print a list from one of Expressionist's obscure dialog boxes.

Expressionist can do some things MathType can't, such as rotate equations, assign colors to equation elements, and search and replace within equations. It also provides a unique tree tool for creating flowcharts, organization charts, and genealogies.

MathType may have fewer bells and whistles, but it wins big in terms of usability and elegance. For example, MathType tries to simplify the process of entering equations — to determine spacing, it looks at what you type and automatically interprets the variables, operators, and functions. It then applies the standard typographical conventions and spacing for you. In contrast, Expressionist does none of this — you must sweat out spacing details on your own. Although it throws tons of tools at you to accomplish such tasks, figuring out which ones to use and how to use them is no trivial chore.

The Bottom Line

If you're an incurable tinkerer with a high tolerance for steep learning curves, you may want to consider Expressionist as your equation editor of choice. You'll get a plethora of options and settings, but because they're poorly documented, be prepared to spend time figuring out how to use them. However, if you're looking for the mathematical-formatting tool that will help you get the job done as quickly and easily as possible, MathType is the better choice.

— Dave Valiulis

Get Info

Expressionist

$$$

Published by: Prescience Corp., 939 Howard Street, San Francisco, CA 94103; 415-543-2252.
Version: 3.0.
List Price: $199.95.

MathType

$$$$

Published by: Design Science, 4028 Broadway, Long Beach, CA 90803; 310-433-0685.
Version: 3.0.
List Price: $199.

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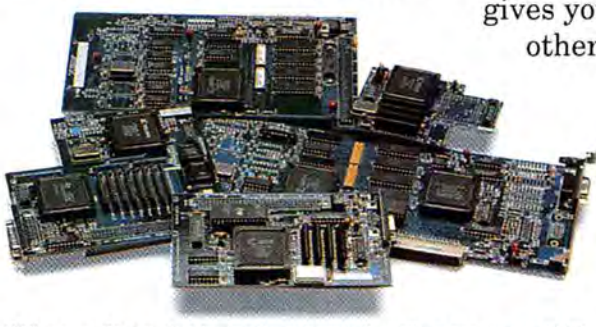


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OCR

TypeReader

Superior font recognition and a well-designed interface enable TypeReader to take on the heavyweights in high-end OCR.

TypeReader, ExperVision's new OCR program, is already running neck and neck with established leaders OmniPage Professional, WordScan Plus, and AccuText. TypeReader distinguishes itself from the competition with an exceptionally well-designed interface and the ability to recognize an impressive variety of fonts.

One-Button OCR

The TypeReader interface comprises a main view window, a status bar, and the Gallery. The Gallery is a floating palette that provides all the controls you'll ever need for scanning documents, locating text blocks, and recognizing text. The beauty of the Gallery is that its controls are always present, no matter what stage of the OCR process you're in, so you never have to switch from one window or dialog box to another.

The Gallery lets you define page-orientation settings, image source, page size, and brightness. Additional controls let you set the program to produce a single column of type from multicolumn pages, use templates for forms scanning, read dot-matrix documents, and base scans on user dictionaries. You can save your settings to disk for future use.

The Gallery's Auto Start button, which uses all current settings to automatically scan documents, locate text blocks, and recognize text, works like a charm. As the recognition process progresses, TypeReader highlights and marks all suspect and illegible characters. A well-designed pop-up verifier window lets you compare recognized text with the original document image as you proof and edit pages. With the status-bar controls, you can zoom in and out of views, move between the Image and Editing views, and see the number of suspect or unrecognized characters.

Other OCR products offer one-button scanning, but TypeReader's implementation is the most flexible. For example, the Image and Editing views are always accessible until you save and close a job. Moreover, you can go back to any document image in a multipage job, reselect or reorder the text blocks, and send the page through the recognition process again. TypeReader updates the Edit view to reflect the changes. You can also select a page image for rescanning — the program replaces the old image with the newly scanned image.

Other OCR programs, such as OmniPage Pro and WordScan Plus, seem clumsy and modal by comparison. OmniPage Pro, for example, goes from image-recognition mode to image-editing mode, but it's a one-way trip. Once you're in editing mode, you're there to stay.

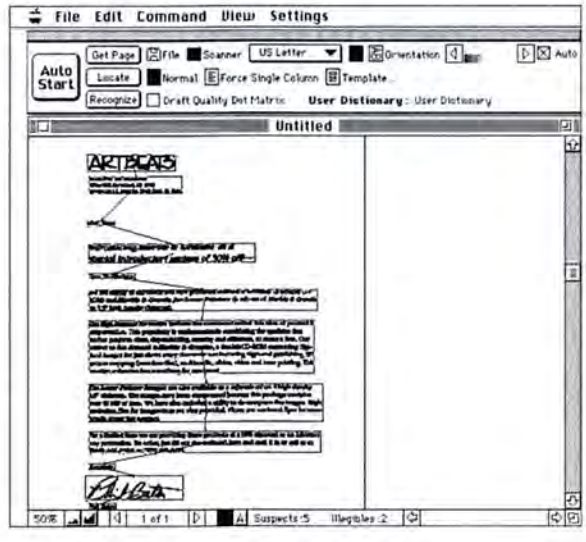
TypeReader's automatic controls are excellent, but you can also work interactively with the program by manually locating text blocks, changing brightness for individual pages, and so on. You can also save scans for deferred processing. An important feature missing from TypeReader is the ability to automatically scan a page for both text *and* graphics. To capture a graphic from a page with TypeReader, you must scan the entire page, save it in graphic format, and edit it in a graphics program.

Just Your Type

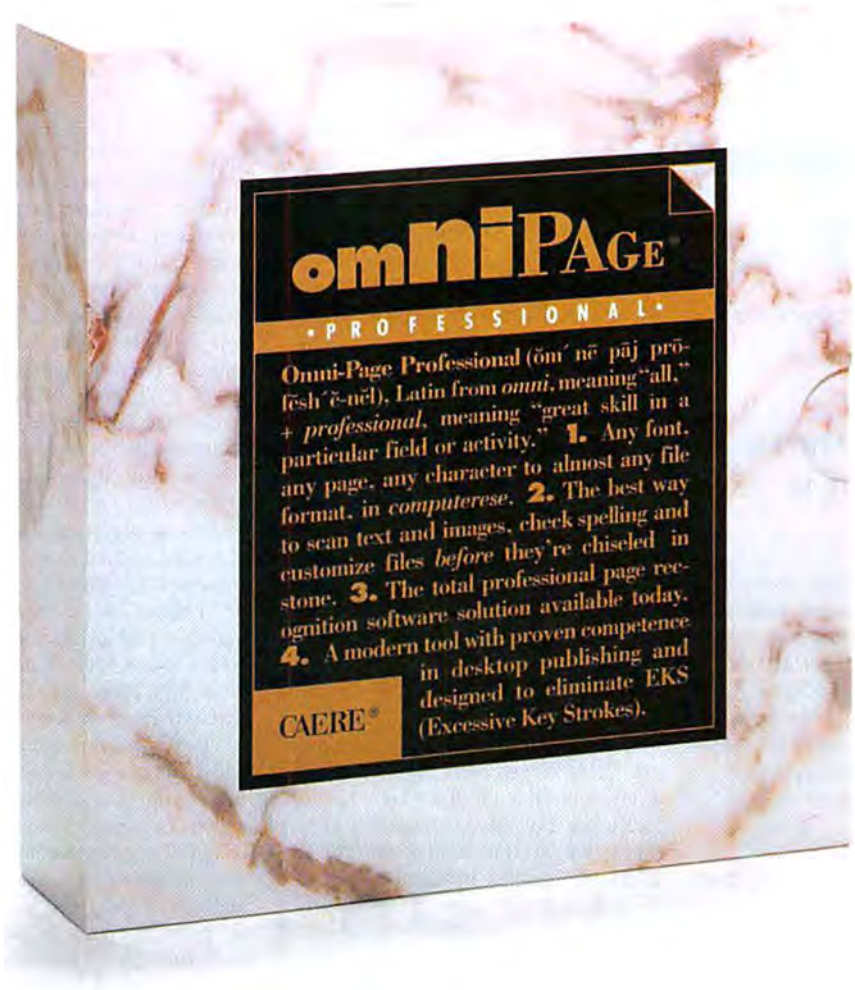
As an omnifont OCR program, TypeReader doesn't require you to train it to recognize a wide variety of fonts. In fact, ExperVision touts TypeReader's proprietary omnifont approach, called MLFA (Machine Learned Fragment Analysis). Initially, we were skeptical about MLFA's ability to outclass the competition, but our tests showed that MLFA really makes a difference when type is in cursive or complex fonts. We scanned the same paragraph in 12-point Zapf Chancery with TypeReader, OmniPage Pro, and WordScan Plus, for example, and TypeReader delivered a significantly higher accuracy rate than either of its rivals. Similarly, the program's accuracy and speed for recognizing hard-to-read pages with faded or smudged type also beat the competition.

TypeReader saves documents in a variety of formats, including TIFF, PICT, Excel, Word, RTF, WordPerfect, WriteNow, MacWrite II, MacWrite 5.0, and text. It reads documents in uncompressed TIFF, PICT, and common fax formats, and depending on the format you choose when you save a document, you can expect TypeReader to retain much of the original document format, including point size, margins, font styles, superscripts, and subscripts. In addition, you can set the program to automatically map serif, sans serif, and monospaced fonts to any font installed in your system.

Although the TypeReader interface is quite slick, there's one embarrassing blemish: Several of the Gallery's buttons are invisible if you don't have your monitor set to at least 256 colors or grays. However, for an initial release, TypeReader is surprisingly bug-free. Our testing with System 7 running on a Mac IIcx



TypeReader's clean, attractive interface is a big plus for OCR work. The Gallery floating palette (shown here just below the menu bar) contains all the program's controls and is accessible from every stage of the OCR process.



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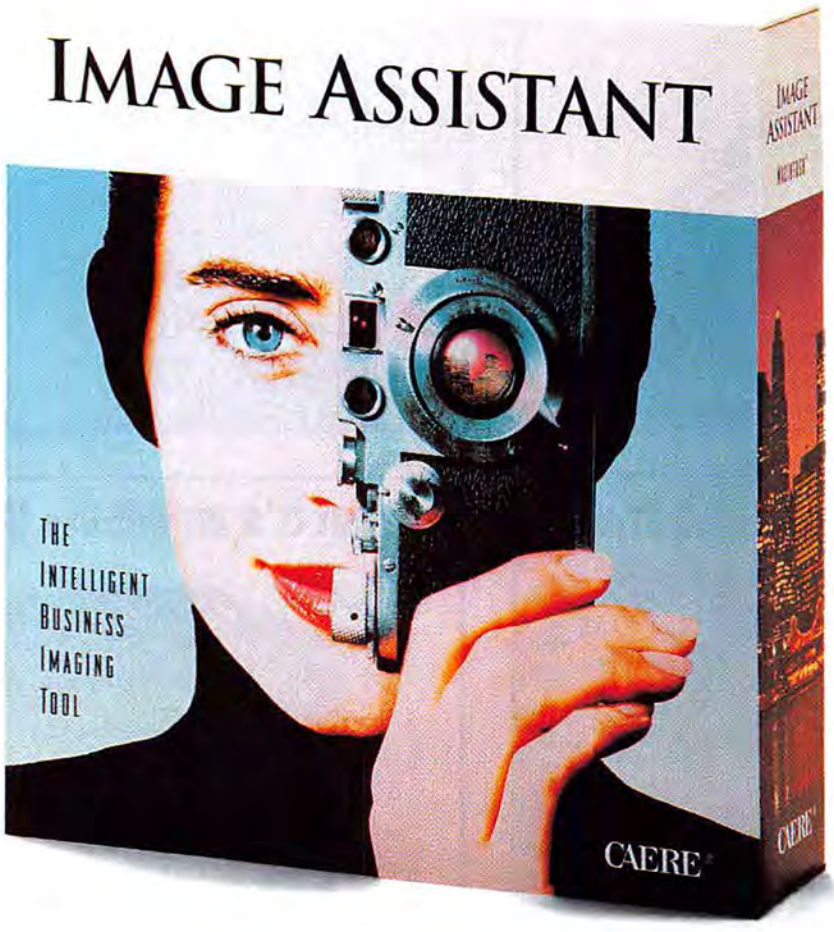
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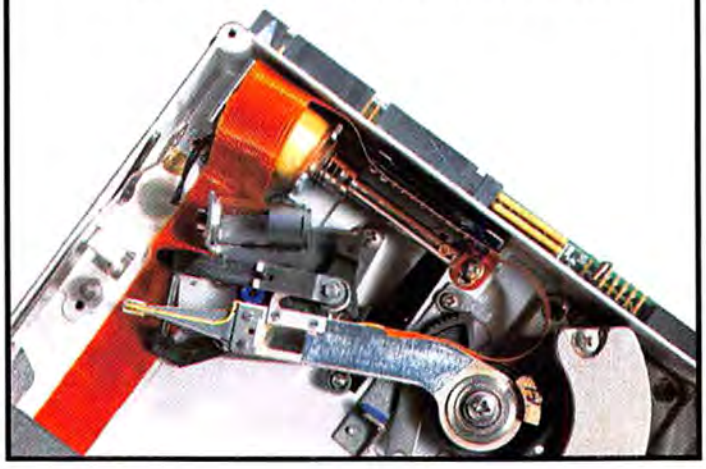
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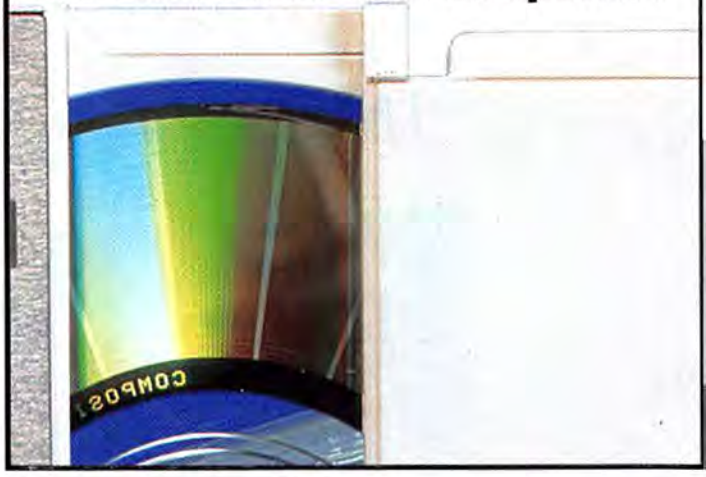
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equipped with 8 megabytes of RAM and an HP ScanJet IIc scanning device was snag-free.

TypeReader's manual, although attractive, suffers from a lack of illustrations and seems strangely unfocused at times, especially in the first few chapters. The modes of processing (automatic, deferred, interactive), for example, are discussed together so frequently that it is often unclear which details pertained to which mode. ExperVision provides a technical-support line, and it runs a bulletin-board system (BBS), which can also provide assistance.

Like most other high-end OCR programs, TypeReader puts heavy demands on your system. You'll need at least a 68020 Mac, System 6.0.5 or later, 5 megabytes of RAM, and 8 megabytes of hard-disk space. The program works well with System 7, supports the core set of Apple events, and is 32-bit clean. In addition, the program supports Hewlett-Packard's AccuPage auto-brightness technology, but you need an HP scanner (a ScanJet Plus or a ScanJet II-series scanner) to take advantage of this feature. TypeReader also works with many other scanners, including those from Abaton, Apple, Microtek, and others.

The Bottom Line

Despite its newcomer status, TypeReader is already a strong contender in the high-end OCR arena. It provides the most attractive and intuitive interface of any Mac OCR product. It introduces a new level of ease of use and elegance to this software category.

In addition, TypeReader's impressive accuracy for recognizing unusual or complex fonts issues a powerful challenge to rivals OmniPage Professional, WordScan Plus, and AccuText. Although the current version lacks trainability and a graphic editor, we rate its overall performance highly.

— Gregory Wasson

Get Info

TypeReader
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QUICK CLICKS



MasterWord

★★★½

Most Microsoft Word users, from novices to jaded pros, should have little trouble justifying spending $99.95 on MasterWord, a collection of enhancements for Word 5.0, from Alki Software. Not only are these enhancements handy but they're also elegant, well designed (mostly), and even fun to use.

To add the new features to Word, you run an Unstuffer and an Installer and then install the three DA features and the screen saver separately. The next time you open Word, you'll find more than ten new commands added to its menus, including one that brings up a floating palette called the CustomBar.

The CustomBar contains 28 buttons with tiny color icons you can click on to issue Word commands, such as Save and Paste. You can change the bar's orientation (vertical or horizontal) and assign any Word command to any button. MasterWord provides seven predefined CustomBar sets and hundreds of predefined buttons. The color icons are quite flashy but sometimes slow to redraw; an option for faster, black-and-white buttons would be nice.

MasterWord has useful commands as well as cute icons. For power users, the Pattern-Matching command lets you use GREP (General Regular Expression Parser) syntax to perform complex search-and-replace operations that would be difficult or impossible with Word's Find and Replace commands. For example, in a single pass, you can find every instance of *cat* or *dog* and stick the word *furry* before each.

Several commands enhance Word's printing and formatting capabilities. The Envelope command brings up a window, which has fields for destination and return addresses. It prints all standard envelope sizes; allows top, bottom, or center feed; and even stores addresses. The Watermark command places a grayed-out phrase, such as *TOP SECRET*, on every page. There's also a Gallery of Tables command that inserts preformatted, blank table formats into your document. MasterWord also provides commands for adding bullets to paragraphs, adding quick and easy footnotes, and creating fractions without using Word's obscure formula language. Plus it has commands for tiling and cascading Word's windows.

MasterWord replaces Word's on-line help with its own version, which is somewhat clearer *and* has pictures. It even adds an on-line help facility, MasterWord Index, which uses hypertext for quick jumping among references.

MasterWord also provides three DA enhancements to beef up your Apple menu. MasterWord Calc, a handy calculator with scores of built-in functions, lets you enter and process complex equations. MasterWord Scale, an electronic version of a pasteup artist's thumb wheel, lets you quickly determine the percentage needed to reduce or enlarge an image to make it fit a given measurement. The third DA, MasterWord Seek, is a file finder that uses GREP. MasterWord Seek has a clumsy interface and is terribly slow; however, Alki promises to ship an improved version free to registered users when it's ready.

MasterWord is bundled with Bogus Software's famous Fish! screen saver, which lets you edit After Dark's Fish! module.

Alki Software Corp., 219 First Avenue N., Suite 410, Seattle, WA 98109; 206-286-2600. Version 1.0. $99.95.

— Eric Taub



FlowChart Express

★★★

A well-designed flowchart can be used to help explain procedures in even the most unlikely situations. Say you're a baseball manager and you're afraid your assistant won't know what to do if you're thrown out of a game. When should the pitcher be pulled? Which reliever should be called in? Time's limited — the big game's tonight, and you're in an umpire-bashing mood. You want a flowchart program that's easy to use and contains all the basic features — one like FlowChart Express.

A plain-vanilla program, FlowChart Express lives up to its name. With it, you can create flowcharts, structure charts, and family trees quickly and easily. Sure, you could use an all-purpose drawing program, but it would be more trouble. Who wants to draw symbols, resize them to fit text, align everything, and create connector lines when FlowChart Express is available to streamline the process?

Your assistant may look at your chart after the starter has given up a few extra-base hits. The opening node might read, "Consider replacing pitcher." You can choose among 12 symbol shapes to hold the text (including all the conventional ones for your programmer friends), each drawn with its own tool.

The next node asks, "Is it past the first inning?" If yes, it presents one strategy; if no, it offers different choices. Drawing an arrow-ended line between nodes is a snap with the connector tool. You can attach *Yes* and *No* to the appropriate places with a couple of mouse clicks. These words will travel with the question if you decide to move it later.

For further explanation, you can attach notes to any of the nodes. These won't show up on the chart itself but will print separately and reference the appropriate node.

You can also fill symbols and lines with patterns and colors, put drop shadows onto all nodes with one command, and create charts as big as 76 x 81 inches.

The program lacks some niceties, such as an all-inclusive text dialog box (stylistic options must be chosen separately) and a magnifying-glass tool (you've got to use menu commands). And it's not suitable for documenting complex hierarchical processes, because it doesn't let you create charts within charts as does Kaetron's higher-end TopDown program. But for those who want fast, easy-to-understand flowcharts, FlowChart Express is a no-nonsense program that does what it says. No bells, no whistles, no problem.

Kaetron Software Corp., 12777 Jones Road, Suite 445, Houston, TX 77070; 713-890-3434. Version 1.0. $149.

— Shelley Cryan



Just Grandma and Me

★★★★½

Once upon a time, Brøderbund Software took a popular $1.95 storybook, *Just Grandma and Me*, by Mercer Mayer, and transformed it into a $49.95 CD-ROM-based Living Book. So what do you and your three-to-eight-year-old get for the extra $48 (assuming you're lucky enough to own a color Mac with a CD-ROM drive)?

Something special indeed. Together

with Voyager's A Silly Noisy House CD-ROM, Just Grandma and Me shows just how good computer illustration and animation for children can be when you're given the elbowroom afforded by a CD-ROM disc and the color capabilities of a Mac LC II.

Just Grandma and Me differs from A Silly Noisy House in its traditional narrative structure: Mayer's Little Critter and his grandma take the bus to the beach, fly a kite, go into the water, eat hot dogs, build a sand castle, and ride home again. The story takes place over the course of a dozen "pages" that faithfully duplicate the original book's whimsical illustrations. Children can watch the pages turn or manually turn them and play with the interactive elements. In either case, the story is narrated out loud by Little Critter — in English, Spanish, or Japanese — as the words are highlighted.

The interactive elements are what really bring the story to life. Almost every object on a page can be clicked on to provide something entertaining or whimsical (starfish dance, umbrellas launch like rockets, and so on). Brøderbund has done a good job of targeting the humor at its youthful audience, with surprises that won't wear thin quickly. And the production values are high enough that parents will also enjoy sitting through the story many times.

Brøderbund plans to produce an entire series of Living Books titles. With Just Grandma and Me, the company has set a very high standard.

Brøderbund Software, Inc., 500 Redwood Blvd., Novato, CA 94948; 800-521-6263 or 415-382-4400. $49.95.

— James Bradbury



Retrieve It!

★★★★½

Those of you who can never find the file you need on your hard disk are in luck: Retrieve It!, an impressive first effort from MVP Software, lets you find files whose name or contents contain any part of a word or phrase. The manual calls Retrieve It! "a text hunter's best friend," and we agree wholeheartedly. This DA can search for text inside files of any type on your hard disks, floppy disks, CD-ROMs, or file servers. It can also search for filenames. Although the Finder's Find command provides filename-search capabilities, Retrieve It! is faster and provides more options.

When your search is complete, a list of files appears. Select a file from the list, and either peek at it — that is, view its text without launching the application that created it — or open the file with the program that created it. You can even interrupt a search and peek inside the files Retrieve It! has found so far.

Much of Retrieve It!'s power lies in its powerful search operators, including AND, OR, NOT, NEAR, BEFORE, and AFTER. A scrolling list makes it easy to choose the proper operator, and built-in help appears at the bottom of the window, explaining how to use the operator you've selected. The search operators let you refine your search criteria and find exactly the files you need. For example, a search for "Sculley" AND "Pepsi" will help you find, among the many letters you've written to John Sculley, only those from when he worked at Pepsi.

There are two products on the market similar to Retrieve It!, but both have significant shortcomings. On Location, from ON Technology, is blindingly fast, but it doesn't use search operators, so it can search only for a single word. Microlytics' Gofer has search operators but is slower and has a confusing and unintuitive interface.

If you have a lot of files and often forget what text is in which file, Retrieve It! is a product you'll love.

MVP Software, P.O. Box 282, Cupertino, CA 95015; 415-599-2704. Version 1.0. $129.

— Bob LeVitus



SnapBack

★★★½

If your network administrator is too busy to spend time maintaining a network-backup system, your site may be a good candidate for SnapBack, Golden Triangle's new network-backup program. SnapBack lets users set their own backup preferences and access archives without the help of a network administrator.

The administrator's main task is to set up a dedicated hard drive connected to a server, to be used for SnapBack backups. (Removable-media and optical-disc drives can also be used; floppy and tape drives are not compatible.) After formatting the server's disk with the SnapBack Setup software, the administrator designates a space allocation for each user.

Users set preferences for when and what to back up, using the SnapBack application on their Mac. They can back up all files on their hard disk or back up a particular set of files selected by label, date, name, or volume (excluding specified folders). Although users can select whatever files they want for backup, the files can't exceed the amount of space allocated for them on the server — and users cannot manipulate the size of the allocation. This restriction helps network administrators by preventing a single user from taking too much space, but users may be frustrated. SnapBack's concession to this difficulty is the Test Backup Size option, which lets users calculate how much room the files they've selected will occupy on the server's hard disk; if they forgo this option and try to back up too many files, they'll get an error message.

To access archives of previously backed-up files, users connect to the SnapBack server via the SnapBack application, which has an easy-to-use interface that features check boxes and radio buttons with clearly stated choices. User spaces on the server are protected with passwords, but the passwords are lost when the backup media are replaced.

SnapBack's archives consist of standard copies of the files designated for backup rather than mirror images of the files stored on the user's disk. This means that the files on the server don't preserve the original files' fragmentation and that they aren't stored in a hard-to-access proprietary format; they're easily accessible from within the Finder and through SnapBack. The disadvantage of this strategy is that such copies take longer to travel over a network than compressed-format copies do, so you'll want to schedule backups at night.

As a backup device, a hard drive costs more per megabyte than a tape drive, but it offers easier access to archived data. Although SnapBack's need for a dedicated hard drive is a limitation (Golden Triangle says that this will change in the next release) and its fixed-sized backup spaces may frustrate users at times, its features are well suited to environments in which users frequently need to access archived material and want to customize backups.

Golden Triangle, 4849 Ronson Court, San Diego, CA 92111; 800-326-1858 or 619-279-2100. Version 1.0. $129.

— Roman Victor Loyola

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The MacUser 100

Want to give yourself — and your Mac — a treat? Here are more than 100 gift ideas guaranteed to satisfy your every whim, and at less than $250, the price is right.

Most of the year, *MacUser* concentrates on business-oriented products such as word processors, spreadsheet programs, hard-disk drives, and printers, but once a year, we get to have a little fun. We search out those products that don't quite fit the business-productivity mold, play around with them, and then come up with a list of 100 products guaranteed to be entertaining, practical, or just plain strange. To round out the list, we asked a few Mac experts to recommend their favorite products for beginners, for setting up a home office, and for the PowerBook.

For still more gift ideas, see the August '92 issue, which contains the complete MiniFinders section, comprising synopses of 1,001 previously reviewed products.

By Victoria von Biel and Roman Victor Loyola

PHOTOGRAPHY: ROSEMARY WILTON

General Interest

1. Amazing Universe CD

Anyone interested in astronomy will enjoy this collection of images of planets, stars, comets, and galaxies culled from photographs taken from observatories and during space missions. Editing software lets you magnify the images and apply filters and colors. The nonintuitive interface and lack of explanation of what you're viewing makes this program most suitable for adults and older teenagers. Hopkins Technology, 421 Hazel Lane, Hopkins, MN 55343; 612-931-9376. $79.95. ⭐⭐⭐

2. The American Heritage Dictionary

If you need more than the dictionary and thesaurus that come with your word processor, you'll find The American Heritage Dictionary to be a useful addition to your arsenal of writing tools. Not only are there definitions and usage information for more than 116,000 words but you can also search by definition or with wildcards if you're not quite sure of spellings. In addition, you get Roget's Thesaurus and — for cryptic-crossword-puzzle fans — an anagram creator. Writing Tools Group, 201 Alameda Del Prado, Novato, CA 94949; 415-382-8000. $99. ⭐⭐⭐½

3. Baseball's Greatest Hits CD

More than just a collections of statistics, Baseball's Greatest Hits brings the game's history alive with sound clips (hear Carl Hubbell reminisce about how the screwball got its name), QuickTime movies, and commentaries by Mel Allen and Red Smith. There's even a game that tests your knowledge of baseball trivia. The Voyager Company, 1351 Pacific Coast Highway, Santa Monica, CA 90401; 310-451-1383. $79.95. ⭐⭐⭐⭐½

4. Beyond CyberPunk

The CyperPunk genre started gaining converts during the '80s; now it's celebrated in magazines such as *Mondo 2000* and in books by authors such as William Gibson and Rudy Ruchner. You get a taste of it in the bizarre and entertaining HyperCard "book" Beyond CyberPunk. The Computer Lab, Route 4, Box 54C, Louisa, VA 23093; 703-894-0511. $29.95.

5. Cathy Daily Planner

If you follow the daily comic strip "Cathy," you know that the title character is constantly trying to get her life in order. If that's how you feel, you can start getting organized by installing the latest of Amaze's daily planners, which features Cathy Guisewhite's cartoon strips. The Far Side Daily Planner and Random House Daily Planner are also available. Amaze, Inc., 11810 115th Avenue N.E., Kirkland, WA 98034; 206-820-7007. $59.95. ⭐⭐⭐

6. ConstructionMac

Here's a program for do-it-yourselfers (or small contractors) who are about to embark on home-improvement projects. ConstructionMac helps you set up a budget and schedule, keep track of costs (both estimates and actuals), figure out what materials you require, calculate surface areas (and how much paint or wallpaper you'll need), and so on. Just make sure you have plenty of room on your hard disk — the database takes up a lot of hard-disk real estate. Revelar, 772 E. 3300 South, Suite 210, Salt Lake City, UT 84106; 801-485-3291. $99. ⭐⭐⭐½

7. Creepy Crawlies CD

Spiders, snakes, bugs, and lizards are the subject of this fascinating and slightly odd CD. Organized into categories such as Wet Stuff, Killers, Pests, and Strange Habits (a word to the wise — stay away from Bombardier Beetles and Firebellied Toads), each entry includes a brief description of habits and habitat as well as a close-up photograph and a video clip. Good for school projects or just browsing. Educorp, 7434 Trade Street, San Diego, CA 92121; 619-536-9999. $149. ⭐⭐⭐⭐½

8. Diet Balancer

Diet Balancer makes it easy to keep a food diary, a useful tool if you're trying to lose weight, watch your cholesterol or sodium intake, or just keep track of the kind of food you're eating. A nice feature is that it takes into account your activity level; it also includes sample meal plans for low-fat, low-sodium, low-cholesterol, diabetic, and low-calorie meals. Nutridata Software, P.O. Box 769, 1215 Rt. 9, Wappingers Falls, NY 12590; 914-298-1308. $69.95. ⭐⭐⭐½

9. The Digital Gourmet

For those who have a Mac and a printer within reach of their kitchen, this HyperCard-based collection of more than 1,000 recipes is certainly easy to use. You're not going to find haute cuisine here (the recipes are more in the Spanish-rice and stewed-prunes class), but thorough nutritional data is provided for each recipe, you can mark your favorites, and you can search for recipes by ingredient. Look for other titles in the Books-On-Disk series. Books-On-Disk, 311 Harvard Street, Brookline, MA 02146; 617-734-9700. $49. ⭐⭐⭐

10. Expanded Books

Voyager's Expanded Books series, which includes modern works such as Ken Kesey's *Sailor Song* and Gloria Steinem's *Revolution from Within*, is a great way



to use your PowerBook for leisure reading. Published for use with HyperCard, the ever-increasing Expanded Books series lets you make notes or read annotations. The Voyager Company, 1351 Pacific Coast Highway, Santa Monica, CA 90401; 310-451-1383. $19.95. ★★★★½

11. Expert Home Design

Want to see how the sofa looks on the other side of the living room? Expert Home Design lets you try out your interior-decorating skills without a lot of heavy lifting. Essentially a drawing program, Expert Home Design contains libraries of predrawn objects (sofas, lamps, tables, and so on) that you can alter to fit your specifications; it also includes some predrawn room plans. SoftSync, 800 Douglas Entrance, North Tower, Coral Gables, FL 33134; 305-445-0903. $49.95. ★★★½

12. The Family Doctor CD

Answering almost 2,000 of the most commonly asked questions about family health, this CD packs in a lot of information — it even describes the action and side effects of commonly prescribed medications and provides a guided tour of the human body. The one drawback is the rigid and intimidating medical terminology used to categorize the information, but once you've made your way past that obstacle, there's plenty of useful material to explore. CMC Research, Inc., 514 N.W. 11th Avenue, Suite 203, Portland, OR 97209; 503-241-4351. $79. ★★★

13. Funny: The Movie in QuickTime CD

This movie collection of 100 jokes told by performers ranging from Frank Zappa to Henny Youngman is perfectly suited to viewing on your Mac. Either watch the movie straight through or search for jokes based on criteria such as the teller's hair color or the level of tastefulness. The jokes range from true stories to riddles to sight gags, and there's even some gratuitous nudity thrown in for good measure. An After Dark module lets you display jokes as screen savers. Warner New Media, 3500 Olive Avenue, Burbank, CA 91505; 818-955-9999. $39.98. ★★★★★

14. HyperBole

HyperBole is a bimonthly multimedia "magazine" that arrives on two disks. Created in HyperCard, it includes features, comics, graphics, movies, regular columns, and poetry. The writing can sometimes be a little idiosyncratic, but it's never boring. HyperBole, 1412 W. Alabama, Houston, TX 77006; 713-529-9696. Black-and-white, $60 per year; color, $75 per year.

15. MacAuthority Software Connection

Anybody who needs a constant supply of software will appreciate the MacAuthority Software Connection. For the yearly subscription fee, you receive monthly disks packed with software (some public domain), including utilities, HyperCard stacks, fonts, and games. The Cobb Group, 9420 Bunson Parkway #300, Louisville, KY 40220; 502-491-1900. $60 per year.

16. macClaimChek

If you'd like to organize your health records and make filing claims with health insurers more straightforward, this HyperCard-based program can help by letting you put all your insurance, payer, and claim information in one place. One of macClaimChek's best features is the helpful tech support. Te Corp., P.O. Box 140, Campton, NH 03223; 603-726-7177. $44.99; add-on claim-form modules, $29.95. ★★★★

17. Master Tuner

Anybody who has ever tried to tune an instrument will appreciate Master Tuner, which lets you use your Mac to check your tuning (you play a note and Master Tuner displays a waveform to show how sharp or flat it is) or provides a reference note for you to tune against. It also lets you set custom temperaments. To use Master Tuner, you need a Mac with a built-in microphone or an audio digitizer such as Farallon's MacRecorder. Andromeda Computer Systems, 8043 33rd Avenue N.W., Calgary, AB T3B 1L5, Canada; 403-247-5300. $69.95. ★★★★

18. Nolo's Living Trust

Nolo's Living Trust is another well-executed and easy-to-use product from the legal-do-it-yourself-software and publishing company Nolo Press. Living trusts can be used as an alternative to wills in certain circumstances, and if you're interested in drawing up your own trust, you'll get all the materials and information you need in this package. Nolo Press, 950 Parker Street, Berkeley, CA 94710; 510-549-1976. $55.95. ★★★★

19. 1001 Fun Posters and More CD

OK, so some of the items in this collection of posters, fax cover sheets, memos, signs, and notes are corny — even sophomoric ("You can't be a boob, boobs are better looking") — but it contains enough good material (and you can always alter it) to be useful for special occasions at work, home, or school. Newslettermen, 11500 Hart Street, North Hollywood, CA 91605; 818-503-8016. $79. ★★½

20. Personal Font

Maybe handwriting will become a lost art: Personal font is a digital version of your own handwriting that may make pens and pencils obsolete. When ordering the font, you must give extensive examples of your handwriting, which is then adapted into a fairly genuine-looking cursive font. Signature Software, Inc., 10075 S.W. Barbur Blvd., Suite 5-401, Portland, OR 97219; 800-925-8840 or 503-244-6259. $179.95.

21. Roger Ebert's Movie Home Companion CD

There's nothing fancy about this CD — no theme music, QuickTime clips, or interactive doodads — but there's a ton of information about movies released between 1986 and 1992. Of course, it has reviews (with star ratings), but you also get the full text of interviews Ebert has conducted with stars and directors and the capability to search for phrases and do Boolean searches (find Woody Allen and Diane Keaton but not Mia Farrow). Quanta Press, 1313 Fifth Street S.E., Suite 208C, Minneapolis, MN 55414; 612-379-3956. $79.95. ★★★★

22. Sports Illustrated CD-ROM Sports Almanac CD

Review the sports highlights and low moments of 1991 with this glitzy CD produced by *Sports Illustrated* magazine and its sister company Warner New Media. With plenty of statistics backed up by excellent photography and overview articles on a range of sports, this is a good gift item for sports freaks (but don't expect to see any swimsuits). A companion CD covering the 1992 Summer Olympics (Sports Illustrated Gold Rush) should now be available. Warner New Media, 3500 Olive Avenue, Burbank, CA 91505; 818-955-9999. $59.99. ★★★★

23. Sprout!

Sprout! is a specialized drawing package that lets you design a vegetable garden that's appropriate for the climate region you live in. It also includes a report function that lets you print out garden layouts, calendars, and shopping lists. It doesn't, however, help with the weeding. Abracadata, P.O. Box 2440, Eugene, OR 97402; 503-342-3030. $79.95. ★★★★

24. Sun Clock 3.0

A little like System 7's Map DA, Sun Clock tells you what time it is anywhere in the world, but it also lets you place a readout on the screen that tracks the time in another zone. Useful if you make a lot of overseas phone

calls, it would be better if you could simultaneously track more than one other time zone. MLT Software also provides modules for the After Dark and Pyro! screen savers for $20 each. MLT Software, P.O. Box 19787, Portland, OR 97280; 503-452-0652. $40. ⭐⭐⭐

25. The View from Earth CD

Using the Time-Life Books series Voyage Through the Universe, this CD-ROM tracks the solar eclipse of July 11, 1991, and provides audiovisual information about the sun, earth, and moon and about eclipses in general. If you're planning to fly down to South America to view the next solar eclipse, due in November 1994, this CD-ROM will provide plenty of preparatory material. Warner New Media, 3500 Olive Avenue, Burbank, CA 91505; 818-955-9999. $79.98. ⭐⭐⭐⭐

26. Visions

This astrological program is easy to use and comes with data for celebrities such as Hugh Hefner, Princess Diana, and Zsa Zsa Gabor. Of course, you also can enter your own date, time, and place of birth to get a personal daily horoscope. The information you get is not nearly as interesting as your horoscope in the paper, but serious students of astrology will probably appreciate this program. Lifestyle Software Group, 63 Orange Street, St. Augustine, FL 32084; 904-825-0220. $39.95. ⭐⭐⭐

Best Buys for Beginners

In all the teaching and training I do, I particularly love working with new users. It's exciting to watch people move from intimidated to fanatic and laugh along the way. Although the following products are recommended for new users, they are not just entry-level — these are complete packages that, for many people, will be useful for years. — Robin Williams (author of The Little Mac Book *and* The Mac Is Not a Typewriter*).*



27. America Online

For people interested in going on-line, America Online is the most fun and easiest telecommunications software available. Its biggest drawback is that it's addictive. Bored? Want some social stimulation? Pop into a public room any night of the week, and mix with other Mac users who share your interests. For those who've moved past the beginner stage, CompuServe is another good on-line service to check out. America Online, 8619 Westwood Center Drive, Vienna, VA 22182; 703-448-8700. Off-peak, $4 per hour; prime time, $8 per hour.

28. ClarisWorks

ClarisWorks is a wonderful little software package that includes a word processor, spreadsheet and database programs, and graphics and telecommunications modules. It's easy to use and inexpensive, doesn't take up much disk space, and has everything in one package to get you started. (Integrated packages such as ClarisWorks are great for PowerBook users too.) Claris, 5201 Patrick Henry Drive, Santa Clara, CA 95052; 408-727-8227. $299. ⭐⭐⭐⭐½

29. DeskPaint and DeskDraw

This team of desk accessories can do just about everything you need a basic painting or drawing program to do, without being overwhelming or intimidating. If you're still using System 6, you can install them as DAs, which is really handy. Under System 7, just put their aliases into your Apple Menu Items folder. Zedcor, 4500 E. Speedway, Suite 22, Tucson, AZ 85712; 602-881-8101. $199. ⭐⭐½

30. FontHaus fonts

For those who are ready to invest in some new fonts, FontHaus is a good place to start. It has a wonderful collection of interesting and inexpensive fonts, for regular body copy as well as for display type, and the disks don't contain anything that might confuse you (except the obligatory AFM files, which you can almost always simply ignore). FontHaus, 15 Perry Avenue, Suite A7, Norwalk, CT 06850; 203-846-3087. Individual typeface, $35 to $79; font family, $50 to $300.

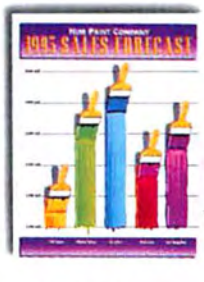
31. The Little Mac Book

OK, I wrote this book, so I am a little biased. But it *is* a good book for beginners [*We agree. — Ed.*], so if you're looking for something to turn to when your Mac acts up, check out *The Little Mac Book*. And while you're at it, get a catalog of the books available from Peachpit Press. It has a wide variety of books on various computer subjects, many of them perfect for new users. And every book has a cheerful money-back guarantee. Peachpit Press, 2414 Sixth Street, Berkeley, CA 94710; 510-548-4393. $14.95.



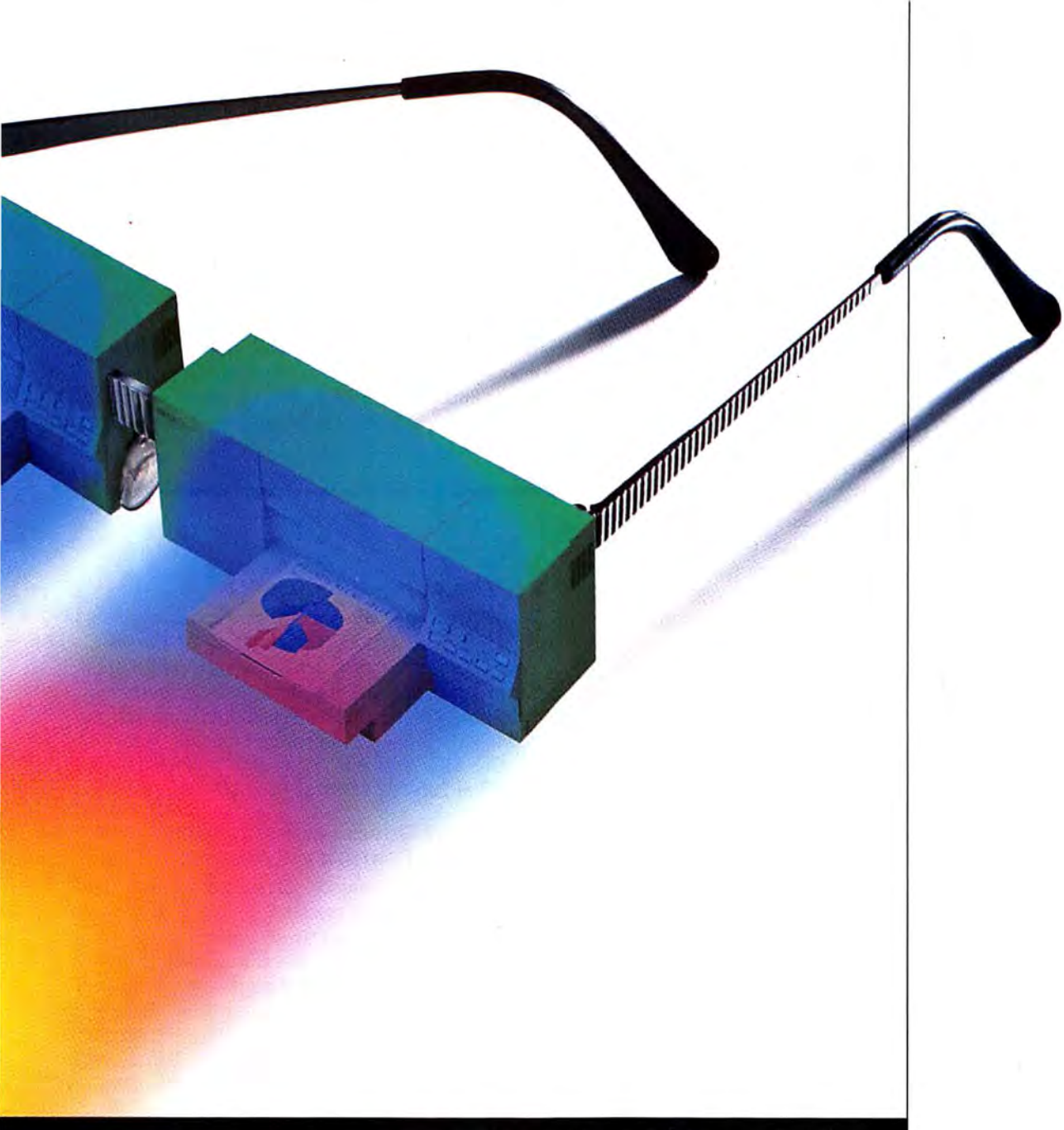
With HP's new PaintJet XL300, you'll

Introducing the 300 dpi color printer that keeps your colors clear with PostScript 2.





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see what you've been missing.

HP brings laser-quality color printing into focus with the new PaintJet XL300 inkjet printer with PostScript 2. For the remarkably low price of just $4,995.*

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32. Mac-magazine subscription

A subscription to a magazine such as *Mac Home Journal* (I'm a columnist there, by the way) — in addition to *MacUser,* of course — can help any beginner, because the articles are written specifically for new users and home/small-business users, with lots of how-to and step-by-step directions. *Mac Home Journal,* 544 Second Street, San Francisco, CA 94107; 415-957-1911. $19.95 per year.

33. Publish It! Easy

For creating simple newsletters, fliers, business cards, and so on, Publish It! Easy is an inexpensive, easy-to-learn page-layout package that can fulfill the needs of most people who don't plan to pursue professional graphic-design careers. Timeworks, 625 Academy Drive, Northbrook, IL 60062; 708-559-1300. $199.95. ★★★★

34. 3 in Three

Playing a game is a great way for beginners to get accustomed to using the mouse and menus. My favorite game is 3 in Three, by Cliff Johnson, not because it requires mindless hand/eye coordination, as some games do, but because you actually have to use your brain to solve its amazingly ingenious puzzles. Inline Design, 308 Main Street, Lakeville, CT 06039; 203-435-4995. $49.95. ★★★★★

35. TouchBASE

This is my favorite electronic address book: It's easy and convenient and prints labels and envelopes with the click of a couple buttons. In fact, an address-book program such as TouchBASE is one of the best introductions to the concept of the database. After Hours Software, Tri Center Plaza, 5990 Sepulveda Blvd., Van Nuys, CA 91411; 818-780-2220. $125 per user. ★★★★½

36. User-group membership

Join a user group (or join several of them). Nowhere else except in a user group can you get the technical and moral support you need when trying to become proficient on your Mac. A user group is not a product, but it is certainly one of the strongest and most effective by-products that has sprung up around the Macintosh. Call Apple at 800-538-9696, ext. 500, or 408-974-4060 (or your local dealer) for the phone number of a user group in your area.

Books

37. *The Apple Macintosh Book*

Serious Mac users who want one reference book should probably look first at this new edition of Cary Lu's classic. This dense book is packed with information, which may be a little daunting for new users, but experienced users will find the information they need presented in a concise and no-nonsense manner. Microsoft Press, One Microsoft Way, Redmond, WA 98052; 800-677-7377 or 206-882-8080. $24.95. ★★★★½

38. *Danny Goodman's Macintosh Handbook Featuring System 7*

HyperCard guru Danny Goodman and designer Richard Saul Wurman have created a guide to using your Mac that goes beyond most handbooks. They use a visual approach that shows — rather than merely describes — the information most users want to know. It may take a while to get used to the format, but once you do, you'll get a lot out of this book. Bantam Computer Books, 666 Fifth Avenue, New York, NY 10103; 800-223-6834, ext. 9666, or 212-765-6500. $29.95. ★★★★



39. *The Dead Mac Scrolls: How to Fix Hundreds of Hardware Problems Without Going Bankrupt*

Larry Pina is well known in Mac circles as the man who takes the fear out of fixing your Mac yourself. In this book, he describes hundreds of symptoms and possible repairs and compares the cost (in time and money) of fixing your Mac yourself or seeking outside help. This isn't a book for beginners, but it should be in the library of anyone with a little technical savvy. Peachpit Press, 2414 Sixth Street, Berkeley CA 94710; 510-548-4393. $32. ⭐⭐⭐⭐

40. *Design Essentials*

If you use Adobe Illustrator or Photoshop and want to learn how to make the most of them, you can't do any better than *Design Essentials.* The concise text is direct and no-nonsense, and the step-by-step illustrations are superb. The book takes you through setting up the optimal system to creating hand-tinted photographs, 3-D effects, and special type effects. Useful for professional as well as amateur designers. Adobe Press, 11711 North College Avenue, Carmel, IN 46032; 800-428-5331 or 317-573-2500. $39.95. ⭐⭐⭐⭐⭐

41. *Dr. Macintosh*

The prolific Bob LeVitus has released an updated version of his popular *Dr. Macintosh* book, subtitled *How to Become a Macintosh Power User.* The book has plenty of tips and hints to help make you more productive, and it's designed to let you quickly find definitions and recommendations without plowing through pages of text. If you're a fan of LeVitus' Beating the System column and Help Folder in *MacUser,* you'll like this book. Addison-Wesley Publishing Co., 1 Jacob Way, Reading, MA 01867; 617-944-3700. $24.95. ⭐⭐⭐⭐

42. *Ecolinking*

Don Rittner's guide to on-line resources is useful for anyone who wants to learn more about protecting the environment. It's also interesting in that it's one of the first books we've seen that addresses the personal computer's becoming an important tool in political activism. Peachpit Press, 2414 Sixth Street, Berkeley, CA 94710; 510-548-4393. $18.95. ⭐⭐⭐½

43. *The Mac Made Easy*

Martin S. Matthews' *The Mac Made Easy* is intended as a pared-down manual that will get new users up and running as fast as possible. It covers all the basics (including a useful introduction to all the Mac models available when the book was printed), but it'll be of most use to users who already have some Mac experience. Osborne McGraw-Hill, 2600 Tenth Street, Berkeley, CA 94710; 510-548-2805. $19.95. ⭐⭐⭐

44. *The Mac Shareware 500*

On-line services such as CompuServe and America Online and user groups are terrific sources of free (or nearly free) public-domain software. Ruffin Prevost and Rob Terrell's book is a comprehensive guide that explains just what shareware is and how you can get it. A trial membership to America Online and four disks containing shareware programs are included. Ventana Press, P.O. Box 2468, Chapel Hill, NC 27515; 919-942-0220. $39.95. ⭐⭐⭐½

45. *The Macintosh Dictionary*

Mac users are as guilty of using jargon and TLAs (three-letter acronyms) as any other group is, so if you're not up to speed on the lingo, get a copy of this dictionary. Written in a casual, easy-to-read style, *The Macintosh Dictionary* covers the basics and is small enough to tote along to conferences and meetings. Addison-Wesley Publishing Co., 1 Jacob Way, Reading, MA 01867; 617-944-3700. $10.95. ⭐⭐⭐½

46. *Zen and the Art of Resource Editing*

If you've ever wondered what ResEdit is or wanted to get to know it better, this guide from the Berkeley Macintosh Users Group is a good place to start. Editors Derrick Schneider, Hans Hansen, and Noah Potkin have done a great job of explaining what resources are and how you can use ResEdit to customize your Mac's software. A disk containing the latest version of ResEdit is included. Peachpit Press, 2414 Sixth Street, Berkeley, CA 94710; 510-548-4393. $24.95. ⭐⭐⭐⭐

Best Home-Office Products

Great business products intended for the corporate world can always find a place in the home office too. Still, there are some products that are especially suited for the home office — by virtue of price, simplicity, or features. Here are ten budget-minded products that have managed to stick around my home office. — Steven Bobker (contributing editor, MacUser*)*

47. BiPlane

If you don't have a spreadsheet program, you need one. Spreadsheet programs are more than number crunchers — they're also excellent for light-duty scheduling and custom forms production. BiPlane is a shareware product from Black Diamond Software that is of full professional quality. Sending in the $59.95 registration fee gets you a high-quality printed manual and a host of goodies. It's not Excel, but it'll do the trick in virtually all home offices. Available from on-line services and user groups. Shareware, $59.95. ⭐⭐⭐⭐⭐



48. BizPlanBuilder

No business worth its salt should operate without a business plan. The difference between making a profit and taking a loss is often narrow, and a business plan can provide the crucial difference. Creating a good business plan isn't difficult if you use BizPlanBuilder. Almost as good is the Business Plan Toolkit (Palo Alto Software; $149). Both use your word processor and spreadsheet program. JIAN, 127 Second Street, Los Altos, CA 94022; 415-941-9191. $129. ★★★★

49. Brother P-touch III

Keeping files and parts of projects organized is always easier for me if I have neat labels. The neatest, best labels are produced by Brother's P-touch III. It's for making temporary notes (you might stick some on the screen of your PowerBook when traveling) as well as more-prosaic file, box, and drawer labels. Brother International, 200 Cottontail Lane, Somerset, NJ 08875; 908-356-8880. $249.95.

50. Dynodex

Keeping tabs on names and addresses is another vital chore. There are lots of excellent products that can do this. My favorite is Dynodex, but nearly as good are Address Book Plus (PowerUp Software; $99.95) and Intouch (Advanced Software; $69.95). Portfolio Systems, 10062 Miller Avenue, Suite 201, Cupertino, CA 95014; 408-252-0420. $89.95. ★★★★½

51. First Things First

Remembering appointments and other time-dependent events can be difficult, because it's very easy to get wrapped up in your work. First Things First takes care of personal reminders as efficiently as a well-trained assistant would. This unusual program (its icon always floats in view on the desktop, no matter what else you're doing) is a superb time manager. Visionary Software, Inc., P.O. Box 69447, Portland, OR 97201; 800-877-1832 or 503-246-6200. $69.95. ★★★★

52. Now Up-to-Date

Along with keeping tabs on names and addresses, you need to manage your time. My favorite scheduler is Now Up-to-Date. DateBook (After Hours; $125) and DayMaker (Pastel; $99) are also contenders. Now Software, 319 S.W. Washington, 11th Floor, Portland, OR 97204; 503-274-2800. $99. ★★★★½

53. On Location

I'd be lost without some way to find the material in the note I typed a month ago and whose filename is now a mystery to me. Fortunately, On Location always comes to the rescue. It's quick and deadly efficient. I may lose material; On Location never does. ON Technology, 155 Second Street, Cambridge, MA 02141; 617-876-0900. $129. ★★★★

54. Paper Direct

The image you convey to the outside world is most often via type and graphics on paper. Although the contents are the most important part of the end product, the paper you use can play a significant role in creating your image. Paper Direct offers an incredible range of different papers; the prices are reasonable; and the service is quick, pleasant, and accurate. (For real clout, try the 32-pound Hammermill Laser Print paper. Its weight and brightness never fail to make a good impression.) Paper Direct, 205 Chubb Avenue, Lyndhurst, NJ 07071; 800-272-7377 or 201-507-5488.

55. Quicken

Keeping track of your money is vital. For the simplest businesses, Quicken 3.0 is a wonderful tool and a superb check writer. It will pay for itself the first month you use it, by saving the time you normally spend producing and recording checks and otherwise paying bills. Intuit, P.O. Box 3014, Menlo Park, CA 94026; 800-624-8742 or 415-322-0573. $69.95. ★★★★★

56. Retrospect

You're very much on your own at home, so to avoid losing precious data, a good backup program is essential. The software you use must be reliable and easy to use when you're backing up and restoring files. For those who are fortunate enough to have some sort of tape drive available, the tool of choice is Retrospect. If you back up to floppy disks, spare hard disks, or removable media such as SyQuest or Bernoulli cartridges, opt for Redux (Microseeds Publishing). Dantz Development, 1400 Shattuck Avenue, Suite 1, Berkeley, CA 94709; 510-849-0293. $249. ★★★★½

Kids and Education

57. Aesopolis CD

This well-executed collection of Aesop's fables will appeal not just to children but to their parents too. Kids will like the wacky Einstein-like host who introduces and explains the fables, and adults will appreciate the stunning illustrations (collected from 19th-century editions of the fables). The fables are read aloud, and a dictionary is included to explain any unfamiliar words in the text. Quantum Leap Technologies, 1399 S.E. 9th Avenue, Suite 4, Hialeah, FL 33010; 800-762-2877 or 305-885-9985. $99. ★★★★½

58. Berlitz Think & Talk CD

If you've ever considered using your Mac to help you learn a foreign language, a good place to start is with the Think & Talk series (as long as you have a CD-ROM drive, that is). Based on the famous Berlitz method, this course will give you an excellent grounding in French, Italian, Spanish, or German. If you have a mike-equipped Mac, you can record your own voice to compare with the pronunciation of native speakers included in this program. HyperGlot, P.O. Box 10746, Knoxville, TN 37939; 615-558-8270. $199. ★★★★

59. French Reading Lab 1: 3 by Maupassant

Sick of conjugating verbs and wish you could move onto something a little meatier in your language studies? This series of French short stories is just the thing for intermediate-level language students looking for a challenge. You can click on unfamiliar words to check meanings, and an included audiotape lets you hear the language. HyperGlot, P.O. Box 10746, Knoxville, TN 37939; 615-558-8270. $29.95. ★★★½

60. Headline Harry and the Great Paper Race

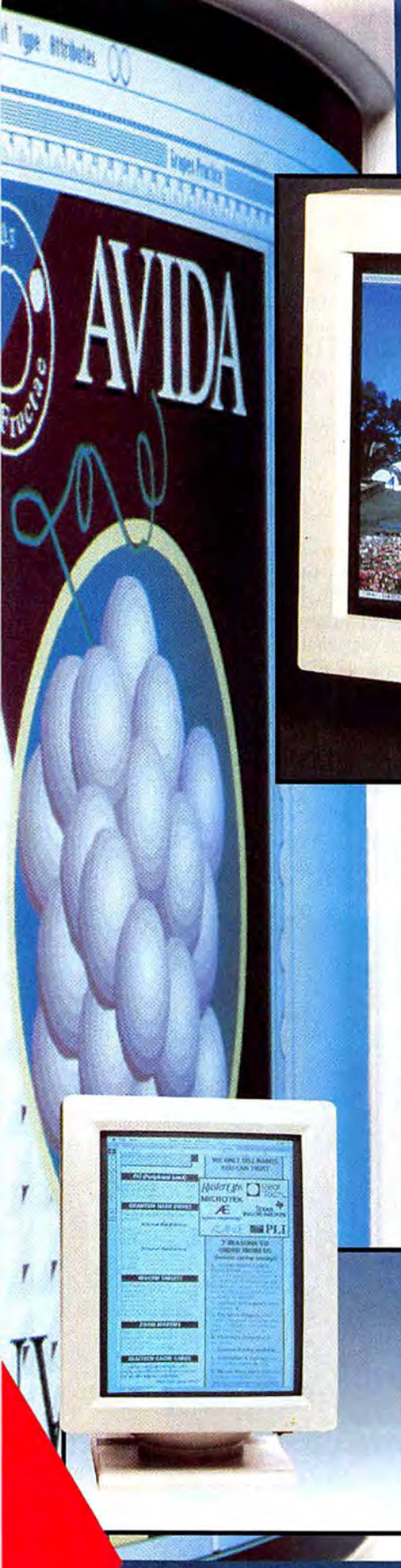
Headline Harry is a little like the Carmen Sandiego series, in that you have to solve a case by using your knowledge of history and geography, but it requires a little more effort on the part of players, so it's more educational. Help Harry figure out what the real facts of a story are in his quest to scoop the rival newspaper on such topics as the civil rights movement of the '60s. Davidson & Associates, 19840 Pioneer Avenue, Torrance, CA 90503; 310-793-0600. $59.95. ★★★½

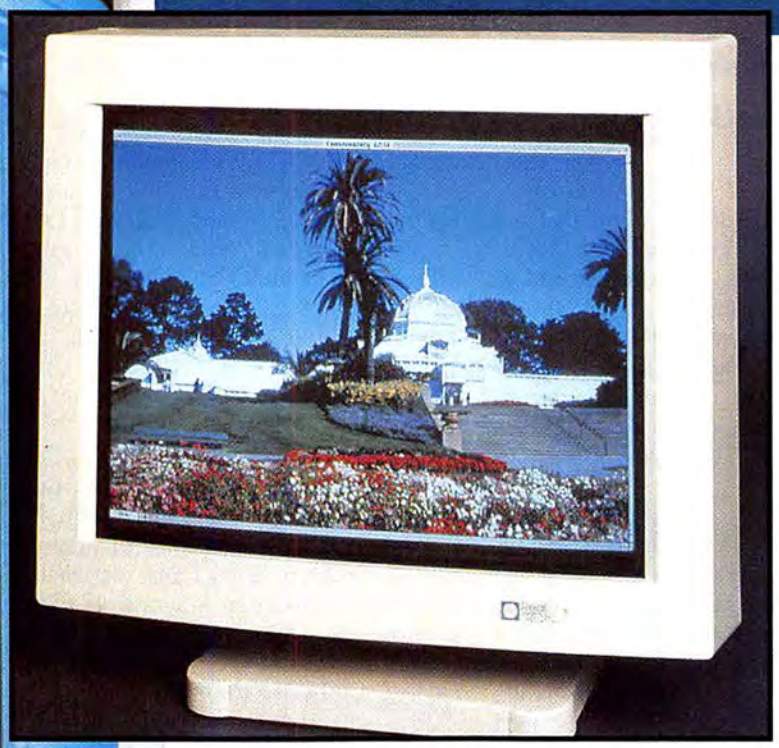
61. Kid Pix Companion

For those who thought the children's painting program Kid Pix was fun, Brøderbund puts the icing on the cake with Kid Pix Companion (which requires that you



HARDWARE THAT FITS





Real Tech™

AT LAST...A *75 Hz* 19" Trinitron *multi-resolution* COLOR MONITOR!

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Lease price: $52/month

MULTI-RESOLUTION MONITOR! ***Comes standard with 7 factory pre-sets for different resolutions, plus 7 programmable settings for additional video cards.***

Our **24-bit system** now includes the RasterOps Paint Board Li with pan-zoom and extended desktop. State-of-the-art engineering. On-board acceleration, 75 Hz vertical refresh rate. View 16.8 million colors at 72 dpi! 1024 x 768 standard resolution; will auto-sync to 640 x 480, 832 x 624, 1024 x 768, and 1152 x 870. Our **8-bit system** includes the RealTech RT-8 video card...a great starter system! Our monitors use a Trinitron® tube from Sony.

AFFORDABLE COLOR!

Breaks the price barrier for 19" Trinitron color monitors.

CPU	*Video*	*Price*
Mac II, IIx, IIcx, IIsi*, IIci, IIfx, SE/30 LC, Quadra 700 & Quadra 950	8-bit system	**$2195**
Mac II, IIx, IIcx, IIci, IIfx, Quadra 700 & Quadra 950	24-bit system (accelerated)	**2695**
Quadra 700 & Quadra 950	On-board video	**1895**

**IIsi solution retains PDS slot for the RealTech cache card.*

A monitor for every budget! Call 1-800-364-USER, and we'll help you with peripherals to complete your system.

RealTech Full-Page Displays

CPU	*Monitor*	*Price*
Mac II, IIcx, IIx, IIfx, SE, SE/30, LCII	Mono	**$579**
Mac II family, SE/30, IIsi, LCII	GS 256	**879**
Mac IIsi, IIci, Quadras	GS 16	**449**

Only $449!

Best value for a large screen...

Quality, flicker free images at a price that lets you experience the convenience of large screen viewing. 15" portrait display has 870 x 640 resolution, 80 dpi. Vertical refresh rate of 75 Hz, full grayscale capability, and flat CRT, (P4 phosphorus), anti-glare screen. One-year warranty.

Look at us for monitors...



TOLL-FREE TECH SUPPORT:
1-800-364-MACS

Real Tech™
Scan 800

$1199

Lease price: $26/month

- ***24-bit color***
- ***8-bit grayscale or black and white***
- ***800 dpi***
- ***fast scanning speed***
- ***200 brightness & contrast levels!***



RealTech Scan 800 — 800 dpi scan
Reflective art (matte finish photo)



RealTech Scan 800 — 800 dpi scan
Transparency (4x5)



The examples above were scanned by an independent service bureau at the default settings, separated using Color Access, and color corrected with Adobe Photoshop.

RealTech Scan 800
Street price: $1199



800 dpi black & white scan (enlarged to show detail)

Microtek 600ZS
Street price: $1299



600 dpi black & white scan (enlarged to show detail)

Howtek Scanmaster 3+
Street price: $7,499



1200 dpi black & white scan (enlarged to show detail)

Transparency Option available for scanning transparencies and negatives!

The Transparency Option lets you scan slides, transparencies, film, or negatives. Exposure time is adjustable for scanning dark film. Scanning speed is 9.1 seconds at 300 dpi (black and white or gray scale); 75 seconds for color scanning.

Scans in 24-bit color, 8-bit grayscale or black & white.

Developed for graphic design studios, ad agencies, publishers... anyone who needs high-quality images for publishing and printing.

The RealTech is one of very few scanners that feature gamma-correction, which lets you adjust contrast and brightness without losing details in highlight and shadow areas.

Includes gamma-correction and Savitar's ScanMatch color-calibration software.

ScanMatch software ($199 retail value—included ***FREE!***) adjusts color scan files so the colors are true when displayed on the Mac.

RT Scan 800	
w/Adobe Photoshop	***$1399***
w/Color Access	***Cal***
Transparency Option	***495***

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HARDWARE THAT FITS is located at 610 South Frazier, Conroe, Texas 77301.

HARDWARE THAT FITS

FAX: 1-409-539-4141
Call: 1-409-760-2400

1-800-364-USER

Toll-free phone ordering in the U.S. and Canada, too!

FAX:
1-409-539-4141



RasterOps 21" Color Monitor

$2999

Lease: $82/month

The latest in 24-bit technology.
On-board acceleration, 16.8 million colors, 72 dpi, 75 Hz refresh rate. 1152 x 870 resolution. A full two pages of vibrant color!

ColorBoard 24Sx	$639
ColorBoard 24STV	799
ColorBoard 264SE/30	719
ColorBoard 8LC	559
ColorBoard 8XL	479
PaintBoard Li	799
VideoTime	1199
MediaTime	1599
ProColor 32	3219
ImagePro Nubus	729
ImagePak Still Compression	319
CorrectColor Calibrator	2019
ClearView Classic 21"	1439
Video Expander II	479

Other cards available. Please call for prices.

RasterOps ***We've been an authorized RasterOps dealer for 4 years; we support these excellent products with top-of-the-line service and warranties.***

Seiko 14" T

$57

High-re view 1(640 x 4 display base.

43% b leading



NEC 15' MultiSy Color M

Digitally-c sharpness with Mac colors at 7 x 600 reso integrated



Radius 15" Color Pivot LE System

$829 *Limited quantities*

Lease: $23/mo.

The lowest cost 15" full-page display pivoting solution for the Mac Quadra and II families, LC, and SE/30. 75 Hz refresh rate. 832 x 624 resolution. The Radius Color Pivot video interface card (included) displays 256 colors.

radius™

We make ordinary computers do extraordinary things!

Color Display/21	$2049
PrecisionColor Display	2759
PrecisionColor 8 Interface	499
PrecisionColor 24X Interface	1649
PrecisionColor 24XP Interface	499
VideoVision	1979
Color Pivot	1299
Pivot	719
Color Pivot Interface	499
Pivot Interface	249
Two Page Display/19	929
Two Page Display Interface	379
PowerView	499
PrecisionColor Calibrator	499

We now carry the entire line of Radius products!

VISA MasterCard

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best selection anywhere!

CM-1445
rinitron

79 **Lease: $16/mo.**

solution Trinitron tube...
million shades of color!
80 resolution, 72 dpi. 14"
has integrated tilt & swivel

righter than the competitor!





nc 4FG
lonitor **$889** **Lease: $24/mo.**

ontrolled images for superior
and contrast...compatible
IIfx, IIsi, and IIci. 16.8 million
2 dpi. 76 Hz refresh rate. 800
lution. 15" display has
tilt and swivel base.



Sony 17" Multiscan Trinitron **$1189** **Lease: $33/mo.**

Super Fine Pitch™, vertically flat Trinitron tube for exceptionally sharp high-resolution text and graphics. 832 x 624 resolution, 50-87 Hz. Low radiation, anti-static, MPRII compliant. Integrated tilt and swivel base.



SuperMac 20" Multimode Color Monitor

$1499 **Lease: $41/month**

34% more viewing area! Flexible viewing modes, utilizing Hitachi shadow-masking technology, allow you to access up to a 20" (1024 x 768) workspace. Eight pre-set modes, plus seven user-definable modes. 16.8 million colors, 72 dpi, flicker-free 75 Hz refresh rate. Works directly with on-board graphics in LC, IIsi, IIci and Quadras.

SuperMatch 20-T	$2749
SuperMatch 20 Dual-mode Trinitron	2499
SuperMatch 17	1179
Platinum 21"	1049
Platinum 20"	949
Spectrum/24 III	829
Spectrum/8-24 PDQ	829
Spectrum/8 NuBus/LC/si	419/499/499
Monochrome Card	329
SuperMatch Display Calibrator	499
Thunderstorm	829
Video Spigot NuBus/si/LC	369/329/249
Video Spigot Pro (NuBus)	1069
Spigot & Sound	479
Spigot & Sound Pro	1159

Hours: 8 am-7 pm Central Standard Time

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*Be on the lookout for our catalog — because YOU COULD WIN $1000 off your next order!**

Watch for your Hardware That Fits "SOLUTIONS" catalog in the mail...then keep it around! Because even if you don't win this month, maybe YOUR matching catalog number will appear in the January '93 issue of MacUser, and make YOU a winner!

If you're one of our 5 instant monthly winners, we'll give you a gift certificate good for $1000 worth of products from our catalog! You win if the last 6 digits of the number on your catalog exactly match one of the following 5 sets of numbers: **0489210, 0654381, 0706518, 0801402,** or **0257412.** There will be 5 winners for this issue (December) of MacUser, and 5 winners for the January issue. To redeem your $1000 gift certificate, mail us the back cover and order form of the catalog with your next order before January 31, 1993.

**OFFICIAL RULES. Gift certificates for winning numbers for this issue (December 1992) will be honored only on orders placed between the magazine issue date and January 31, 1993, and only if the winning number is validated by mailing in the catalog's back cover and order form to: Hardware That Fits, 610 S. Frazier, Conroe, TX 77301. This promotion is open to persons 18 years of age or older, except employees of Micro Business Solutions, Inc., its affiliates, subsidiaries, advertising and promotion agencies and members of their immediate families. Taxes and shipping are the responsibility of the winner(s). Winning constitutes permission to use the names and likenesses of winners for publicity and promotional purposes. Void where prohibited by law.*

Microtek Scanmaker II Color Scanner



$949

Lease: $26/mo.

Microtek 600 dpi color scanner includes Adobe Photoshop — limited version, with 24-bit color editing capabilities.

- 16.8 million colors
- 3 scanning passes (RGB)
- 14 brightness settings for each color plane
- Scanning speed 150 seconds

High-resolution color scanner capable of scanning 16 million colors at up to 600 dots per inch. Outstanding image quality in a compact, flatbed design.

Scanmaker IIXE *(includes full version of Photoshop)*..... **1195**

Microtek 1850 Scanmaker Slide Scanner

$1569 **Lease: $43/mo.**

The affordable 35mm color slide scanner! Scans landscape or portrait slides at 1850 dpi. Captures 24-bit color and 8-bit grayscale. Bundled with Photoshop, you'll be able to produce 4-color separations from your color slides.



*NEW! "LEASE TO FIT" Programs**

1. ***True Lease***...with 10% buy-out option
2. ***Installment Lease***...with $1.00 buy-out option
3. ***Speed Lease***...90- or 180-day terms, with buy-out or conversion to other leases
4. ***20/20 Lease***...10% security deposit, 20 equal payments, 10% buy-out
5. ***90-day Deferred Lease***...no payment for 90 days; first and last payment in advance

**All leases are subject to credit approval. All lease payments in our ads are based on the "True Lease" program at 48 months. Prices, lease prices, and rates are subject to change without notice.*
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Toll-free information: 1-800-364-LESS

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System solutions.

We're not interested in one-shot product sales. Our whole business is based on customer service, and on building relationships.

That's why we've come to be known as America's

ONE-STOP SOURCE FOR CUSTOM SOLUTIONS!

Talk to one of our friendly sales or customer service folks, and they'll help you figure out the right solution for your business, whether you need a IIsi or a Quadra 950. We'll help you anticipate future requirements, so you don't feel like you're on an upgrade merry-go-round. We won't try to sell you more than what you need. But don't settle for less, either!

We offer the right solutions at the right price with our 5 "Lease-to-Fit" programs.

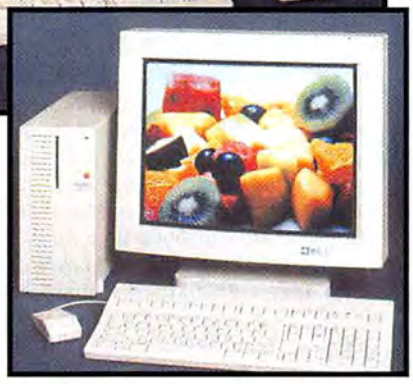
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Toll-free information:

1-800-364-LESS





$9,699 Lease: $266/mo.

Quadra 950 RealTech 19" 24-bit Trinitron System, 425 Mb Hard Drive, Apple Extended Keyboard

$7249 Lease: $199/mo.

Quadra 700 RealTech 19" 24-bit Trinitron System, 210 Mb Hard Drive, Apple Extended Keyboard



$1949 Lease: $53/mo.

Mac LCII 4/80 Sony 8-bit Trinitron System, MacPro Plus Keyboard



$2759 Lease: $76/mo.

Mac IIsi 14" 8-bit Trinitron System, 5 Mb RAM, 120 Mb Hard Drive, MacPro Plus Keyboard



$3799 Lease: $104/mo.

Mac IIci 14" Seiko 8-bit Trinitron System, 5 Mb RAM, 210 Mb Hard Drive, MacPro Plus Keyboard, Cache Card



$2629 $72/mo.

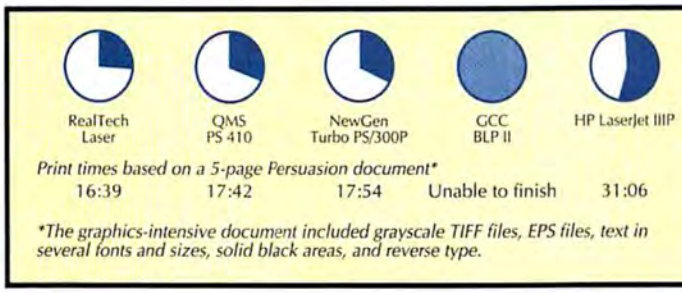
Mac IIsi Full Page, 5 Mb RAM, 120 Mb Hard Drive, MacPro Plus Keyboard

Toll-free ordering in the U.S. and Canada, too!
Hours: 8 am-7 pm Central Standard Time

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DARE TO COMPARE.





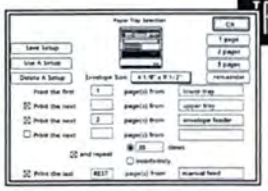
★★★★½*

"The RealTech features not just a genuine Adobe interpreter, but also a PostScript Level 2 raster image processor (RIP), which earns it more than a few points for forward compatibility."

— PUBLISH MAGAZINE, Feb. 1992

★★★★½

Visibly faster. The RealTech laser printers' high performance Weitek RISC processor prints complex documents 4 to 5 times faster than other non-RISC laser writers in their price range. ATM font rendering technology builds raw type characters 4 to 5 times faster. The RealTech uses a new version of the Sharp printer engine that prints 9 pages per minute.



You can specify up to 4 paper changes from the menu — without ever leaving your chair!



The multi-user printer!

An ideal choice for multi-user printing environments. Second 250-sheet paper tray and cassette feeder are available ($299); optional envelope feeder available for RealTech Laser only.

$1595

Lease price: $44/mo.

500% FASTER

than non-RISC printers

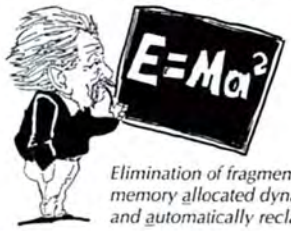
RealTech™ Laser

- ***RISC processor***
- ***SCSI port***
- ***9 pages/minute***
- ***PostScript Level 2***

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Based on Adobe PostScript® Level 2...

the next generation of Adobe's page description language, which has become the industry standard for defining pages of integrated text and graphics. It contains a number of performance, function and print quality enhancements that save printing time and improve quality. PostScript® Level 2 is compatible with all current application software that supports the PostScript® language. In addition, PostScript® Level 2 offers new capabilities, including forms handling, graphic patterns support, and new half-tone algorithms.



Elimination of fragmentation = memory allocated dynamically and automatically reclaimed

Genius-level memory.

One pool of memory is available for all resource needs. Memory is dynamically allocated and automatically reclaimed; no arbitrary memory restrictions exist. Disk space management is improved to eliminate fragmentation and improve transfer of information from the hard disk to RAM.

HOW REALTECH STACKS UP

PERSONAL LASER PRINTERS

	RealTech Laser	QMS-PS 410	NewGen Turbo PS/300P	GCC BLP II	HP LaserJet IIIP
	★★★★½	★★★	★★	★★★	★★½
Price	**$1595**	**$1500**	**$1695**	**$1799**	**$1800**
Pros	PostScript Level 2	PostScript Level 1	Clone	PostScript Level 1	PostScript Level 2
	Weitek RISC processor	Motorola 68020	Weitek RISC processor	Motorola 68000	Motorola 68000
	9 ppm	4 ppm	4 ppm	4 ppm	4 ppm
	300 dpi	300 dpi	300 dpi	300 dpi	300 dpi
	SCSI port	—	—	SCSI port	—
	2 mb RAM (10)	2 mb (6)	2 mb (16)	2 mb (4)	2 mb (4)
	Optional 2nd paper tray & cassette feeder–$299	Optional 2nd paper tray	Optional 2nd paper tray	—	Optional 2nd tray
Cons	Only available from HARDWARE THAT FITS 1-800-364-USER	No SCSI port Low-quality 50-sheet paper tray	No SCSI port Mediocre image quality	Insufficient standard RAM for some complex graphics	Slow No SCSI port

See MacUser, September 1992 for complete information about the performance of these printers.

HARDWARE THAT FITS

610 South Frazier
Conroe, Texas
77301



"...be forewarned: PostScript-clone printers still have a long way to go before they can rival true Adobe PostScript printers."**

$3195

Lease price: $88/month

RealTech™ Laser 400

The ONLY 11x17 PRINTER WITH TRUE ADOBE POSTSCRIPT® LEVEL 2 FOR UNDER $3500!

- *High-speed printing (15 ppm, letter size)*
- *8 ppm (tabloid size)*
- *2 paper trays included!*
- *SCSI port*
- *Full page 11x17 printing!*

The ideal networking printer. The RealTech Laser's (and Laser 400's) three interface ports (Appletalk® RS-422, IBM PC parallel, and RS-232-C) can be used simultaneously. They can be assigned either PostScript® or LaserJet II emulation, making it the ideal network printer. It switches automatically between interfaces and their assigned emulations, and spools files on a real-time basis. A Hewlett Packard LaserJet Series II emulation allows use with non-PostScript applications software.

Prints full-page 11x17 documents! No more tiling to get the full image area, or taping letter-size pages together! The RealTech Laser 400 is the optimum tabloid printer.

SCSI port. The standard configuration includes a SCSI port and 2 Mb of RAM upgradable to 10 Mb (RealTech Laser) or 4 Mb of RAM upgradable to 16 (RealTech Laser 400).

AGAINST THE COMPETITION

11x17 PRINTERS/HIGH-SPEED PRINTERS

	RealTech Laser 400	QMS 860 Hammerhead	QMS 2220
	Becoming the #1 choice for publications printing!		
Price	**$3195**	**$4595**	**$6795**
Pros	PostScript Level 2	PostScript clone	PostScript Level 1
	Weitek RISC processor	Intel 80960 processor	Motorola 68020 processor
	15 ppm 8.5x11	8 ppm 8.5x11	22 ppm 8.5 x 11*
	8 ppm 11x17	4 ppm 11x17	11 ppm 11x17
	300 or 400 dpi	600 dpi	300 dpi
	SCSI port	SCSI port	SCSI port
	4 mb RAM (16)	12 mb RAM (32)	4 mb RAM
	2 paper trays	1 paper tray	2 paper trays
Cons	Only available through HARDWARE THAT FITS 1-800-364-USER	Not true Adobe PostScript Slow for complex graphics	Expensive Limited to 300 dpi

Money-back guarantee. Our famous 30-day money-back guarantee backs these products. If you're not completely satisfied, we'll refund your purchase price, minus consumables.

TECH SUPPORT:
1-800-364-MACS

FAX ORDERING:
1-409-539-4141

LEASING INFORMATION:
1-800-364-LESS
CALL: 1-409-760-2400

VISA MasterCard

** Quote from MacUser September 1992 issue. "Personal PostScript Printers" by Bruce Fraser.

1-800-364-USER

HOURS:
8 am-7 pm CST
Toll-free in the U.S. & Canada, too!

1-800-364-USER

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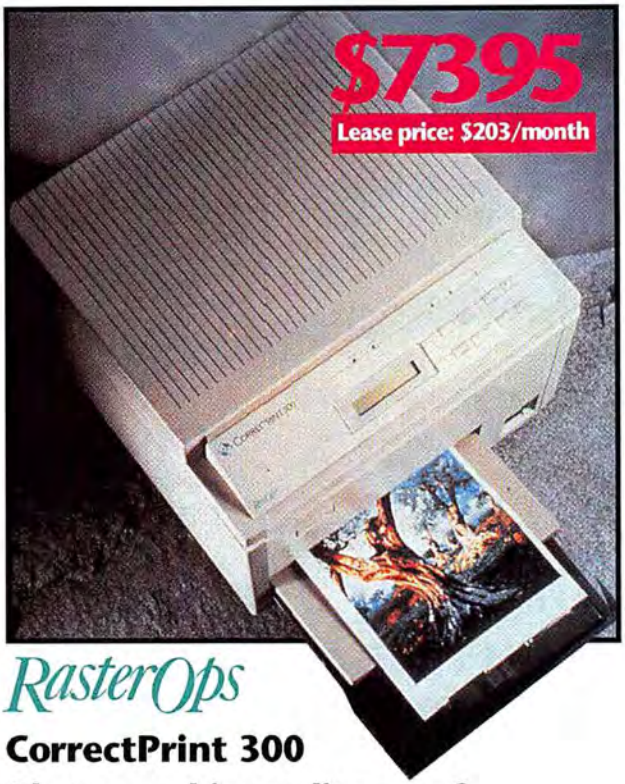
Texas Instruments MicroLaser Plus.

$1249
Lease price: $34/month

300 dpi, HP LaserJet Series II emulation standard. 1.5 Mb RAM. 9 pgs./minute; 17 resident fonts; 3,000 pgs./month duty cycle. Optional accessories: 2nd paper tray, separate envelope tray.

TI MicroLaser Plus 35..... **$1349** Lease: $37/mo.

TI MicroLaser Turbo..... **$1595** Lease: $44/mo.



$7395
Lease price: $203/month

RasterOps

CorrectPrint 300

Photographic-quality proofs for less than $2 a page!

The highest-quality color available in desktop color proofing technology. The RasterOps CorrectPrint 300 uses a four color (CMYK) dye-sublimation thermal printing process at 300 dots per inch. The result is a continuous-tone print that resembles photographic-quality output.

The CorrectPrint 300 prints on special sheet-fed paper or transparencies, not on rolls. For best output, special coated paper is required. It uses a RISC controller with JPEG decompression capability. The CorrectPrint 300 comes with 0Mb RAM, 12 Mb RAM is required, and it is upgradable to 36 Mb RAM.

It's Adobe PostScript® language compatible, and includes three interfaces as standard: AppleTalk, Ethernet, RS-232C, plus a SCSI port, allowing users to share the CorrectPrint among Macs, PCs, workstations, or a network. 35 resident fonts.



NEC Silentwriter Model 95

$1469
Lease price: $40/month

Micro-fine toner and NEC's patented "Sharp Edge" technology gives you sharp, black print quality.

300 dpi laser printer prints 6 ppm. 2 Mb RAM, Motorola 68000 processor, expandable to 5 Mb. Built-in envelope feeder and 250-sheet tray; feed or print consecutively or alternately. Resident language: Adobe PostScript Level 2. Automatic emulation switching. Optional second paper tray available.

Seiko Instruments Personal ColorPoint PS

High-quality color! 300 dpi color thermal printer uses 16 MHz RISC processor. 6 Mb RAM standard, upgradable to 10 or 22 Mb. Adobe PostScript® language compatible. Download, process and print images simultaneously; it has multiple frame buffers. Includes three standard interfaces plus a SCSI port, allowing users to share it on a network. 39 resident fonts.



$4495 Lease price: $123/mo.

HARDWARE THAT FITS

TOLL-FREE TECH SUPPORT:
1-800-364-MACS

FAX: 1-409-539-4141
Call: 1-409-760-2400

Full bleed...full color...11x17!



Only $5995!
Lease price: $165/month

Real Tech™ Color 350

Where else would you find such a high-quality, affordable color printer?

The color output shown above is an Aldus Freehand sample file.

High-speed thermal printer produces edge-to-edge comps on 11x17 (OB-size) paper...

300 dpi thermal transfer technology prints quality color or monochrome output. 10 Mb standard; upgradable to 18 or 34 Mb. Three interface ports (RS-232, parallel, and Appletalk®) can be used simultaneously. Includes 39 resident Bitstream fonts.

Brilliant, saturated color at 300 dpi

Adobe PostScript® compatible...perfect for graphic arts applications, publishing, business presentation graphics, and more. On-site warranty.

PANTONE® is Pantone, Inc.'s check-standard trademark for color.

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Prints on BOTH sides of thermal or plain laser paper!*

- *PANTONE® color simulations*
- *300 dpi*
- *10 Mb of RAM*
- *SCSI port*
- *Largest "live" image area of any cut-sheet printer*

** The RealTech Color 350 uses state-of-the-art thermal technology, which allows you to print on both sides of thermal paper, or on both sides of high-quality, smooth finish plain laser paper. (Use thermal paper or clay-coated paper for optimum output quality and consistency.) Call for more information.*

1-800-364-USER

Toll-free ordering in the U.S. and Canada, too!
Hours: 8 am-7 pm Central Standard Time

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Fast, friendly service



"Service with a smile!" That's what you'll get from every member of our friendly sales team. They're always willing to help you.

APPLIED ENGINEERING

For 13 years Applied Engineering has sold and installed more products for Apple computers than any other company except Apple. ***After selling over one million units...they're simply the best in the business!***

1.44 Plus Super Drive (for Mac Plus, SE and MacII). ***No SWIM upgrade needed! ..279***
TransWarp LC 25MHz 469
TransWarp SE 68030-25MHz (with 25MHz68882) 719



QUANTUM & FUJITSU HARD DRIVES

Internal Hard Drives		External Hard Drives	
Q 105LP	389	Q 105LP	479
Q 240S	729	Q 240S	815
Q 425S	999	Q 425S	1085
FJ 425 Mb	999	FJ 425 Mb	1085

PLI (Peripheral Land)



21 Mb Floptical

$469

Infinity Turbo 44	579
Infinity Turbo 88	699
21 Mb Floptical/Quad Ext	469
21 Mb Floptical/Quad Int	409
128 Mb Optical	1649
1 Gig MaxOptical	3539
4 Gig DAT w/Retrospect	1729
CD ROM Drive	599
240 Mb MiniArray Ext	1659
480 Mb MiniArray Ext	2599
1 Gig MiniArray Ext	4599

NEWER TECHNOLOGY



Quadra 900/Overdrive. ***Increases processor speed by 25% to 33MHz ...119***

Quadra 700/Overdrive. ***Increases processor speed from 25 to 30MHz ...259***

SCSI-II DART-0 Mb System. *Solid state; access time–.1ms.; transfer rates up to 12 Mb/sec. Uses 1 Mb, 4 Mb, or 16 Mb SIMMS. Built-in battery backup.....2949*

Image Magic DSP (Digital Signal Processor) *Accelerates Adobe Photoshop filters by 200 to 964%*

Image Magic NuBus	769
Image Magic FX/PDS	699
Image Magic Quadra/PDS	699

fx/Overdrive II. *Accelerates 40MHz 68030 to 50MHz for a 25% increase in speed* 329

PowerBook memory available! Call for pricing on memory upgrades for the 160, 180, 210, and 230.

WACOM TABLETS

Standard 12 x 12	689	Standard 6 x 9	489
Electrostatic 12 x 12	759	*Choice of stylus or 4-button cursor. Please specify.*	
Standard 12 x 18	1029		

ACCELERATORS: Top performance in one easy upgrade!

RADIUS

radius™

Dramatically improves the performance of your Mac! The Radius Rocket 33 increases original Mac II processing speed by up to 8 times! For Mac II, IIx, IIcx & IIci; includes integrated math coprocessor and 8 SIMM slots for up to 128 Mb of DRAM.

Radius Rocket 25i	1239
Radius Rocket 25	1649
Radius Rocket 33	2069

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Helpful Hints

Every month in Help Folder, Bob LeVitus and Andy Ihnatko extend a helping hand to Mac users who are having problems, no matter how trivial or embarrassing those problems might be. But Bob and Andy don't do it alone — they have powerful Macs and sophisticated software that help them help you. Here are some of the products they find most helpful when they're solving everybody else's problems:

Bob: Topping my list has to be **MacEKG** (MicroMat, 415-898-6227; $150), a control panel that performs a set of comprehensive diagnostic tests on your Mac. It runs automatically every startup, every day, or every week and lets you know if your Mac's logic components, RAM, PRAM, SCSI, video circuitry, and hard drives are functioning properly.

Andy: In my opinion, system diagnostics means a dual-trace oscilloscope, a multitester, and a desktop littered with Mac parts. No, my choice for Most Useful Product is **In Control** (Attain, 617-776-1110; $129.95). No matter what sort of info you want to keep a handle on — addresses and phone numbers, to-do lists, or the configuration of various Macs on your network — In Control can manage it. Copy it onto your hard drive, and it won't go unused for long, I promise you.

Bob: I love In Control, but I'm also fond of **Help!** (Teknosys, 813-620-3494; $149), which examines your system's hardware and software configuration and compares the results with a comprehensive database of rules, notifies you of any problems it detects, and then suggests corrective action. It even prints configuration and diagnostic reports. The database isn't perfect, but it handles my extension-laden system well.

Andy: Good lord'n butter! *I'm* supposed to be the propellerhead in this team! OK, I'll counter with **Hard Disk ToolKit** (FWB, 415-474-8055; $199.95). Other hard-disk formatters — most notably **Drive7** (Casa Blanca Works, 415-461-2227; $59.95) — are easier to use, but no other utility gives you the nitty-gritty diagnostic and formatting tools you'll need when Mr. Disk-with-a-question-mark pays a visit.

Bob: Because I use a ton of PostScript Type 1 fonts, I like **Adobe Type Manager** (Adobe Systems, 415-961-4400; $99). It displays all of my Type 1 fonts perfectly on-screen, prints them perfectly on any printer — PostScript or not — and once and for all lets me strip my system of all those weird TrueType fonts. Best of all, thanks to a special deal between Apple and Adobe, you can get a copy of ATM (plus four faces of Adobe Garamond) for only $7.50 by calling 800-521-1976, ext. 4400.

Andy: Well, I'll top that fantastic deal with another one: Apple's own **ResEdit** and **MacsBug,** both available gratis from user groups and on-line services. ResEdit's capabilities are justly legend: It lets you play any of dozens of savage practical jokes on your coworkers, strip the registration data from a piece of software, change your hard-drive icons, and on and on. MacsBug ain't as widely used by the huddled masses, but its raw ability to save your hindquarters from the flames of unexpected system crashes makes it well worth climbing the program's sharp learning curve. Plus you look way studly when other folks see you using it properly.

Bob: You don't need ResEdit to change hard-drive icons under System 7! So that'll be my next recommendation, **System 7** ($79 from your local Apple dealer). If you haven't gotten it yet, get it — but don't forget that it needs at least 4 megabytes of RAM to be useful. Want to say something nice about System 7?

Andy: No, this is my space to plug **StuffIt SpaceSaver** (Aladdin, 408-761-6200; $59.95). It took the industry three

have Kid Pix installed). Not only are there new stamps to use and pictures to color but kids can also add QuickTime movies to their products and create mini slide shows. This program is fun enough to keep even the most grown-up kid amused for hours. Brøderbund Software, Inc., 500 Redwood Blvd., P.O. Box 6121, Novato, CA 94948; 415-382-4400. $39.95. ★★★★½

62. Kid Works 2

Kid Works 2 lets children write and illustrate their own stories and then listen while the Mac reads the story back. Kid Works' drawing program is also fun — a little like Kid Pix, it has several tools, including a stamp feature that lets you repeat an icon to your heart's content. Kid Works operates fairly slowly but is well worth the wait. Davidson & Associates, 19840 Pioneer Avenue, Torrance, CA 90503; 310-793-0600. $59.95. ★★★★

63. KidDesk

If you'd like your younger kids to use your home Mac but are worried about your precious files being trashed, you can use KidDesk to hide the Finder and create a child-friendly desktop. Kids can launch their programs from a customizable desktop that includes special DAs such as a calculator, a calendar, and a phone and message machine that actually lets kids record their own messages. A "parent code" lets the grown-ups access their own — much more boring — programs. Edmark, 6727 185th Avenue N.E., P.O. Box 3218, Redmond, WA 98073; 800-426-0856 or 206-861-8200. $39.95.

64. Kidz Mouse

It's cute, it's colorful, and it works just like your Mac's regular rodent. The Kidz Mouse is a compact, sturdy input device that fits nicely under busy little digits but might seem awkward to adult mousers with large hands. Two buttons resembling flattened mouse ears let you click or double-click. Logitech, Inc., 6505 Kaiser Drive, Fremont, CA 94555; 800-231-7717 or 510-795-8500. $79. ★★★★

65. Living Books CD

Arthur's Teacher Trouble is the second in Brøderbund's Living Books series, and like the first (Just Grandma and Me), Arthur's Teacher Trouble is delightful. Children can have the story read to them or can listen to the story and play along by double-clicking on the pictures and finding the hidden games (find the crooning chocolate-chip cookies). Moving from page to page can take a while, but that didn't seem to faze our

years, but now we finally have Finder-level automatic file compression that works exactly the way it oughtta. Fast, safe, and transparent, it can extract and create SIT archives when .SIT is added to or deleted from the end of the filename in the Finder — and all for a price lower than dinner and a movie (a very, very good dinner and three movies anyway). The 60 megs of files on my PowerBook's 40-meg hard drive is testimonial enough.

Bob: Last but not least, **Last Resort** (Working Software, 408-423-5696; $49.95). This little gem writes every keystroke you type to a text file. Its big benefit is that everything you type between saving and crashing is stored in that text file for easy recovery. The new Programmer's Edition also records Command-key combinations and mouse clicks — a godsend if you need to figure out what you were doing just before you crashed.



preschool test subjects. Brøderbund Software, Inc., 500 Redwood Blvd., P.O. Box 6121, Novato, CA 94948; 415-382-4400. $49.95. ★★★★★

66. Millie's Math House

Millie's Main Room leads to six rooms in which learning activities tempt children ages 2 to 5. Following graphical or spoken instructions, children can learn how to compare sizes, recognize numbers and patterns, match geometric shapes, match quantities with visual and audio clues, and use thinking and counting skills. The program's responses are a little slow, so your child might become a bit impatient with each activity. Edmark, 6727 185th Avenue N.E., P.O. Box 3218, Redmond, WA 98073; 800-426-0856 or 206-861-8200. $49.95; educational version, including teacher's manual, $59.95.

67. The Orchestra: The Instruments Revealed CD

The classic children's introduction to the orchestra — Benjamin Britten's "The Young Person's Guide to the Orchestra" — has been turned into an interactive tool for learning about instruments and musical forms with the addition of commentary and annotations. An analysis of Britten's music is included, along with an audible time line that traces music history from Gregorian chant to modern jazz. Of course, you can just lean back and listen to the music too. Warner New Media, 3500 Olive Avenue, Burbank, CA 91505; 818-955-9999. $79.98. ★★★★

68. Picture It!

Picture It! lets you practice foreign-language vocabulary (Spanish, French, Italian, and German are available) by presenting pictures, words, and sounds on your Mac's screen. You can create custom tutorials by grouping certain flash cards as well as by adding your own words. The program is reversible: Explanations and help are available in the foreign language and in English, in case you'd rather not use English at all. Penton Overseas, 2091 Las Palmas Drive, Suite A, Carlsbad, CA 92009; 619-431-0060. $69.95. ★★★½

69. Rodney's Wonder Window CD

Better than Saturday-morning cartoons, Rodney's Wonder Window is an interactive computer art show that's lots of fun for kids but surprisingly sophisticated too. Take a tour of the Poke and Prod Pet Shop, or spend some time tending the Digital House Plant (you plant the seeds the first time you open Rodney's Wonder Window, and the plant grows over the next five weeks — as long as you remember to water it and apply bug spray). Children who like Brøderbund's Kid Pix will find lots of inspiration in this CD-ROM. The Voyager Company, 1351 Pacific Coast Highway, Santa Monica, CA 90401; 310-451-1383. $39.95. ★★★★

70. Where in America's Past Is Carmen Sandiego?

Another in the popular Carmen Sandiego series, this one requires knowledge of American history over the past 200 years or so to help you solve the crimes committed by Carmen and her vile henchmen. Not only will your kids learn a little history and geography from this series but it's also a good way to make them comfortable using a Mac. Brøderbund Software, Inc., 500 Redwood Blvd., P.O. Box 6121, Novato, CA 94948; 415-382-4400. $59.95. ★★★½

71. Where in the World Is Carmen Sandiego? (Deluxe Edition)

In this, the latest, largest, and glitziest of the Carmen series, the mission is still the same: to track down Carmen and her gang, who are stealing the world's treasures. But Carmen has some new recruits, and the search expands to 45 countries and more than 2,500 clues. You'll need a color monitor and lots of RAM and hard-disk space to make the most of this game. Brøderbund Software, Inc., 500 Redwood Blvd., P.O. Box 6121, Novato, CA 94948; 415-382-4400. $79.95. ★★★★½

7 REASONS WHY YOU NEED A NEW WORD PROCESSOR.



Because you're ready to see what System 7 can do.

Apple calls System 7 the biggest improvement in Macintosh since Macintosh. And WordPerfect® is now System 7 savvy.

So now (among lots of other new things), WordPerfect will automatically keep track of changes that you (or someone else) might make to imported files (charts, graphics, whatever), and update your WP documents accordingly. Now, a change made in one place can be a change made in many places. Apple calls it "Publish and Subscribe," and it works between programs on your hard drive, as well as among people on your network. Publish and Subscribe assures you that your documents will always reflect the latest information available.

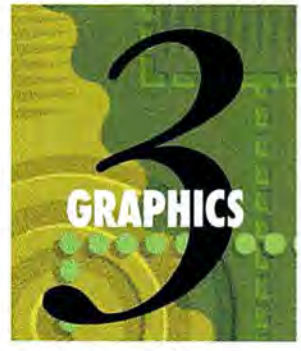
And it's just one of the new System 7 tricks that WordPerfect 2.1 has mastered.



Because WordPerfect does columns better than the Greeks.

Pick a starting point, click on the ruler, and see your text in two columns. Or in three columns. Or five columns. With vertical rules beside or between them, if you like. Drag a guide on the ruler and try *unequal* columns. Highlight text in a box that jumps across columns.

Go crazy with the design, or stick with the tried-and-true. The point is, WordPerfect gives you formatting options that other word processors don't. And exploring them couldn't be much easier.



Because you'd use more graphics if using them were easy.

WordPerfect not only gives you full control over the placement of graphics in your text, it also gives you a color drawing program for modifying imported artwork (or starting over from scratch) without ever leaving the program.

You can print graphics under your text (as "watermarks") or on top (as overlays).

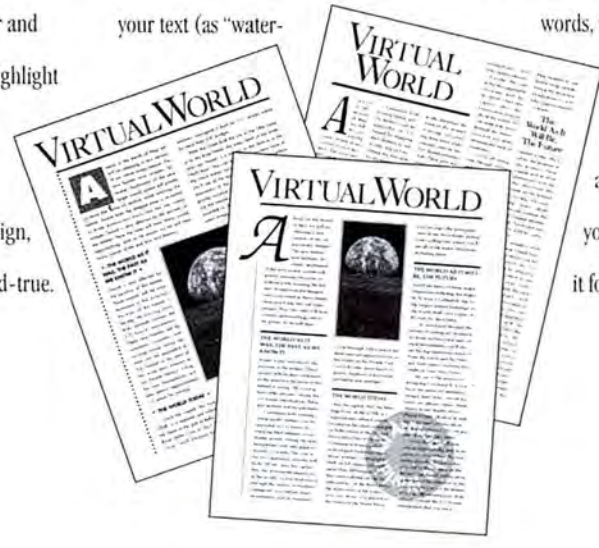
You can use the drawing tools to rotate text to any angle that strikes your fancy (something many page-layout programs still can't do).

And WordPerfect gives you 36 border styles and 64 fill patterns — which you can use in any of 256 colors — for highlighting graphics, paragraphs, columns, pages, even blocks of text.



Because a movie is worth who-knows-how-many words.

If a picture is worth a thousand words, what's a movie worth? With WordPerfect and QuickTime, you can calculate it for yourself.





Apple's QuickTime is a new technology that lets you work with digital video and sound as easily as you now work with text and graphics files.

Imagine being able to place (and size) a QuickTime movie anywhere in a document. You could add urgency to a memo with a few well-chosen words delivered "live." Or help an audience visualize your latest brainstorm with a 3-D simulation they can start, stop and replay.

We have a feeling that words can't begin to describe all the ways you'll think of to use it.



Because you get tired of repeating yourself, yourself, yourself.

Perhaps because they've heard it's a powerful programming language, WordPerfect's macro editor intimidates some people at first. It shouldn't.

It's no more complicated than a tape recorder. Click "record" and it memorizes your keystrokes. Click "play" and it repeats them.

With no more knowledge than that, you can create a WordPerfect macro. And can spare yourself the effort of formatting M-E-M-O-R-A-N-D-U-M, T-o-:, F-r-o-m: (and so on) across the top of the page every time you want to fire off a memo, for example.

But simple as recording your own macros can be, we also ship a number of them with the program. For formatting addresses to print on envelopes. Placing "drop caps" at the start of paragraphs. And other jobs you'd rather not do twice.



Because some people work on DOS computers.

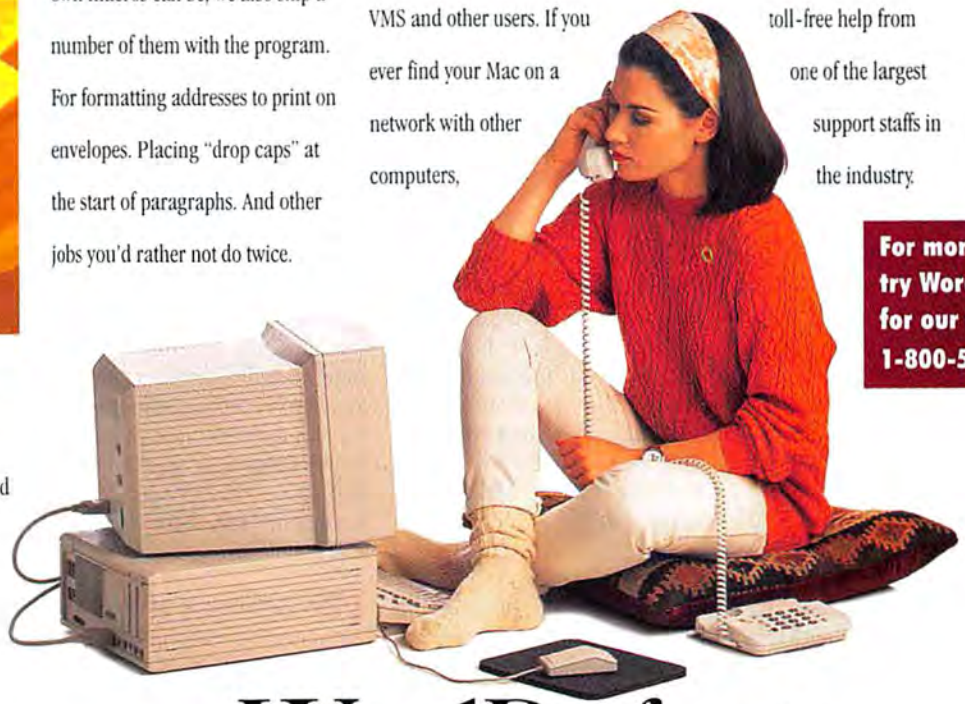
You want the word processor that's right for you. If your choice happens also to be the choice of millions of others — with other computers — so much the better.

That's why WordPerfect is such a good choice. Lots of DOS users use WordPerfect. As well as UNIX, VMS and other users. If you ever find your Mac on a network with other computers, WordPerfect's compatibility can save you a lot of aggravation. Not to mention a lot of reformatting.



Because even if you never call us, it's nice to know we're here.

Like any good Mac program, WordPerfect 2.1 is easy to use. But unlike many Mac programs, you're not on your own with it. You get toll-free help from one of the largest support staffs in the industry.



For more reasons to try WordPerfect, call for our free video. 1-800-526-2296

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Best PowerBook Accessories

PowerBooks are popular (300,000 sold and counting) for good reason. But even a good thing can be improved by the addition of a few well-chosen accessories. Most of the following products will help you get more work done more efficiently with your PowerBook. When you don't *feel like working, check out Voyager's Expanded Books, described elsewhere in this article, or one of the following PowerBook-friendly games: Prince of Persia (Brøderbund), Glider (Casady & Greene), 3 in Three (Inline Design), or Creepy Castle (Reactor). — James Bradbury (editor,* MacUser*)*



72. BookEndz

If you don't own one of the new PowerBook Duo machines, you might be a little envious of their sophisticated docking options. You can ease some of the jealousy with the BookEndz docking station. It lets you slide your PowerBook 140, 145, or 170 into a plastic tray to make all your connections at once (see Mobile Mac, October '92, page 261). Pilot Technologies, 10025 Valley View Road, Suite 156, Eden Prairie, MN 55344; 612-828-6002. $179.

73. Carrying Case

The single best carrying case for PowerBooks we've seen comes from Apple itself. The good news: It costs only $57. The bad news: Unless you're an Apple developer or dealer, the only place you can get one is to show up in person at the Apple Company Store (408-974-5050). If you weren't planning to add Cupertino to your vacation itinerary, then your next-best bet is one of the Ultimate Notebook cases from I/O Design. I/O Design, 942 Springdale Drive, Exton, PA 19431; 215-524-2700. Small case, $119.95; large case, $129.95.

74. Lind External Battery Charger

After you've recovered from the shock of what Apple charges for its battery charger, prepare yourself to spend a few bucks more and get Lind Electronic Design's alternative, which completely drains all the juice from your battery before it recharges. The result should be improved performance and a longer life span for your batteries. For the 140, 145, 160, 170, and 180 only. Lind Electronic Design, 6414 Cambridge Street, Minneapolis, MN 55426; 612-927-6303. $189.95.

75. PhoneNET StarConnector

What's the easiest way for PowerBooks to talk to each other and to other Macs? Hint: It doesn't involve buying a special SCSI cable from Apple and connecting your PowerBook's hard drive to a SCSI chain. It's much easier to keep two of Farallon Computing's PhoneNET StarConnectors on hand (along with a regular phone cord) so that you can use System 7's file sharing to swap data with another Mac (not to mention the ability to quickly add your PowerBook to any LocalTalk network). Farallon Computing, 2000 Powell Street, Emeryville, CA 94608; 510-596-9100. $29.95.

76. Power Adapter

OK, so maybe you don't think you'll be using your PowerBook and driving at the same time. Even so, having Empire Engineering's DC7-5PB adapter to provide the correct power from your car's cigarette lighter will enable you to recharge PowerBook batteries on the run. Empire Engineering, 4251 S. Higuera Street, San Luis Obispo, CA 93401; 805-543-2816. $99.

77. PowerPad

PowerBooks don't come with numeric keypads, function keys, or easy-to-use arrow keys. Adding a PowerPad elegantly corrects all three omissions. Sophisticated Circuits, 19017 120th Avenue N.E., Suite 106, Bothell, WA 98011; 800-827-4669 or 206-485-7979. $129. ★★★★½

78. PowerSwap

Sooner or later, on any long plane flight, no matter how much you've done to get improved performance, you're going to have to swap PowerBook batteries. The ingenious PowerSwap plugs in to your AC power port and provides just enough power to keep you from losing the contents of memory, which will preserve whatever RAM disks you've set up and avoid the otherwise unavoidable and power-draining process of rebooting. Utilitron, P.O. Box 811, Allen, TX 75002; 214-727-2329. $39.95.

79. Utility collections

At press time, only Connectix's CPU collection of PowerBook utilities had shipped, with at least three competing packages in various stages of imminent arrival (see Mobile Mac, November '92, page 255). Which

package you buy probably doesn't matter too much, as long as you get one. It's worth it for the improved power-management features alone. Connectix, 2655 Campus Drive, San Mateo, CA 94403; 800-950-5880 or 415-571-5100. $99.

Games

80. Battle Chess CD-ROM Enhanced CD

The power of 3-D animation and fantasy meet in this imaginative version of an old classic. Watch as pieces march on the checkered battleground and actually engage in hand-to-hand combat. Although the use of sound is deficient, the lively and comical animation sequences inject personality into the playing pieces. The game comes with ten levels of play, and it lets you play long-distance games via modem. Interplay Productions, 3710 S. Susan, Suite 100, Santa Ana, CA 92704; 714-549-2411. $79.95. ★★★½

81. Creepy Castle

Journey to Transylvania, where your character's girlfriend is held captive by an evil doctor in his mysterious castle. But first you must travel to the castle through woods and graveyards, where werewolves and ghouls lurk. Once you're in the castle, vampires stalk you, and in the dungeons, the dammed threaten your existence. And there's still the doctor to get by if you can make it that far. Reactor, Inc., 445 W. Erie Avenue, Chicago, IL 60610; (312) 753-0800. $49.95. ★★★★

82. Diamonds 2.0

In this variant of Breakout-type games, you must guide a ball through 30 mazes, clearing bricks to advance to the next maze. You have to match the ball color with the brick while avoiding traps, opening locks, and dealing with reversing directions. You can also create new mazes or customize the maze background with any PICT file. Varcon Systems, Inc., 10509 San Diego Mission Road, Suite K, San Diego, CA 92108; 619-563-6700. $49.95. ★★★★

83. 4-D Boxing

Step into the ring, and make your bid for the world title against the champ in this Mac version of boxing. Watch the action from one of nine camera angles as boxers jab, dodge, taunt each other, and deliver the knockout blow. With colorful 3-D polygonal graphics and modern animation techniques, the boxers move in fluid humanlike fashion to add to the excitement. Electronic Arts, P.O. Box 7578, San Mateo, CA 94403; 800-245-4525 or 415-572-2787. $49.95. ★★★★



The simplest Mac spreadsheet Read about it here.

Introducing 1-2-3 for Macintosh Release 1.1.

1-2-3® for Macintosh® has always been the easiest-to-use Mac spreadsheet. And now, this latest version of 1-2-3 is even easier.

Easiest graphing of any Mac spreadsheet.

With 1-2-3 your graphs and charts are stored in the same files as your worksheets. (Something you won't find in Microsoft® Excel.) This means you can make one-click graph style changes, pull objects across window boundaries to the worksheet, link chart titles to cells, and shrink charts so that they appear as small icons on your worksheet. You can also manipulate data, text, and graphics all in the same file with *one* set of menus and only *one* set of tools. The result is a spreadsheet that lets you spend your time figuring, not figuring things out.

True 3D and In-Cell editing. For faster spreadsheet building.

1-2-3 is the *only* spreadsheet that offers true 3D, so you can link and consolidate data or create multi-page reports all in a single work-sheet file. Without having to link the files. In short, 3D makes the job of organizing and analyzing your work fast and easy. And if that isn't enough of an inducement, this should be: only 1-2-3 offers In-Cell™ editing, so you can enter a formula directly into a cell for faster, easier editing.

The simplest transition from DOS to Mac.

1-2-3 is the clear choice for DOS spreadshee users moving to Macintosh because only 1-2-3 offers the traditional Classic® menu, which make it easier for you to access familiar 1-2-3 commands and run macros already written for 1-2-3

New features automate, illustrate and integrate.

This new release of 1-2-3 for Macintosh raises ease of use to a new level. Now you can drag and drop data between worksheets. You can use our new SmartSum to automatically add multiple columns or rows, even on the spreadsheets behind the one you're working on

And you can take advantage of the many graphic enhancements. Enhancements that let you place things like pictures behind your graphs. That let you stack pictures to form bar charts. That let you simultaneously view your graph and the numbers that make up your graph. All of which makes it easy for you to be understood by others.

There it is in black and white: 1-2-3 is the world's easiest to use Macintosh spreadsheet But if you don't believe everything you read, we've got a more colorful way to make our case on the right.

Or try this.



Words on the left didn't convince you? Buy a copy of 1-2-3 for Macintosh from your favorite reseller* and try it for 60 days with a full money-back guarantee direct from Lotus. Or call **1-800-TRADEUP, ext. 7123**** for a free working model. (Excel users be sure to ask about our special upgrade price.***)

Lotus 1-2-3 for Macintosh

*Be sure to ask your Apple Authorized Retailer about Apple's new "Easy Way" bundle which gets you 1-2-3 and 3 other leading software products at a great price. **In Canada, call **1-800-GO-LOTUS.** ***Please have your credit card and product package ready when you call. ©1992 Lotus Development Corporation. Lotus, 1-2-3 and DataLens are registered trademarks of Lotus Development Corporation. Classic is a registered trademark licensed to Lotus Development Corporation. Microsoft is a registered trademark of Microsoft Corporation. Mac and Macintosh are registered trademarks of Apple Computer, Inc. This product includes Adobe Type Manager. Adobe Type Manager and the ATM logo are registered trademarks in the United States of Adobe Systems, Incorporated.

84. Mouse Yoke

If your mouse feels melancholy about its nose-to-the-ground existence, strap the critter into a Mouse Yoke and fasten the assembly to your desktop. Then fire up any flight-simulation game, and your mouse will fly with you through the wild blue yonder. The aircraft-style yoke can't click the mouse button, and the documentation stalls in the DOSosphere, but a Mouse Yoke scrambles just as quickly as any joystick. Colorado Spectrum, 748 Whalers Way, Suite E201, Fort Collins, CO 80525; 800-238-5983 or 303-225-6929. $34.95. ★★★

85. Mutant Beach

As Native Nick, you must travel to the Idol City and search for the jeweled nose of the Great Idol Mohawk, who has set loose his servants to create chaos in your village. Your journey is both a quest for the nose and a race against time, as you provide each idol with a specified gift while avoiding mutated creatures that harass you every step of the way. Inline Design, 308 Main Street, Lakeville, CT 06039; 203-435-4995. $59.95. ★★★★

86. Prince of Persia

The terrible Grand Vizier Jaffar has claimed the throne of the land and plans to marry the princess, who is in love with your character. It is up to you to save the princess and the land, but the task is a dangerous one. You must journey through the castle, avoiding deadly traps and battling Jaffar's men, who are determined to stop you. Brøderbund Software, Inc., 500 Redwood Blvd., P.O. Box 6121, Novato, CA 94948; 415-382-4400. $49.95. ★★★★½

87. Red Baron

World War I airplanes engage in dogfights in this flight-simulation game. Players choose to play either German or Allied forces and run a variety of missions against the game's many aces, including the Red Baron. Record your missions, using the Mission Recorder option, and then play them back to help plan future strategy. The manual includes historical backgrounds, maps, and flight tactics. Dynamix, Inc., 99 W. 10th, Suite 337, Eugene, OR 97401; 503-343-0772. $69.95. ★★★★

88. Sherlock Homes, Consulting Detective CD

If you're a fan of Sherlock Homes (or even "Masterpiece Theater"), this is the CD-ROM for you. Actors sporting impeccable English accents present the details of three cases (The Case of the Mummy's Curse, The Case of the Mystified Murderess, and The Case of the Tin Soldier), and you then set to work gathering clues and solving the mysteries. You couldn't ask for a more elegant rendition. ICOM Simulations, 648 S. Wheeling Road, Wheeling, IL 60090; 708-520-4440. $69.95. ★★★★½

89. Super Tetris

At last, here's the sequel to the popular and addictive game Tetris. Super Tetris maintains the basic premise of the original, but new features are added to enhance play. Your goal is to work down to the bottom of the pit, but once you're there, a new pit appears that requires a higher skill level to navigate. Falling bombs, buried prizes, Russian tunes, and graphics of the Moscow Circus make this sequel as habit-forming as the original. Spectrum HoloByte, 2490 Mariners Square Loop, Alameda, CA 94501; 510-522-1164. $49.95. ★★★★

90. Surgeon 3: The Brain

If you've ever wanted to be a brain surgeon, now's your chance. In Surgeon 3, you're presented with life-or-death decisions and the future of your patients is in your hands. The game has three skill levels, so you can work your way from intern to attending physician. A great feature is the library, where you can look up information about brain diseases and neurology. A drawback is that there's little information about how to play the game, so you learn what to do by making mistakes — and losing your patients. ISM, Inc., P.O. Box 247, Phoenix, MD 21131; 410-560-0973. Color, $59.95; black-and-white, $49.95. ★★★½

91. Wordtris

The fourth game in the popular 'tris series puts a new twist in the familiar Tetris scheme of positioning multishaped objects in horizontal lines. This time, the blocks are all squares, but each contains a letter. Players must form words with these letters to prevent the screen from filling up. This game is great fun for one player or more (you can play against other players over a network or via modem). Spectrum HoloByte, 2490 Mariners Square Loop, Alameda, CA 94501; 510-522-3584. $49.95. ★★★★

Diversions

92. *Art of Darkness: The After Dark Companion*

When it comes to the ultimate in fritterware, Berkeley Systems' After Dark screen saver takes the prize. You can easily spend hours playing with the modules — covering your screen with underwater toasters or having the mower man chase Boris the cat around your monitor, for example. When you run out of your own ideas, it's time to turn to Erfert Fenton's book *Art of Darkness*, which tells you how to create dozens of effects and includes a disk with nine new displays. Peachpit Press, 2414 Sixth Street, Berkeley CA 94710; 510-548-4393. $19.95. ★★★★



93. Auto Mouse

Why use a mouse when you could be double-clicking on a Corvette? If you know the answer to that question, then this plastic mouse cover, which puts a little red Corvette onto your desktop, is probably just the thing for you. It looks good, but it's a little clunky to use. Suntime promises that other models will follow soon, and not just sports cars — look for cats; dogs; and yes, even mouse mouse covers. Suntime, 7817 N. Cameron Avenue, Tampa, FL 33614; 813-886-1145. $19.95. ★★★

94. Insanity 1.0

Insanity 1.0 is an extension that lets you take out your frustrations on your Mac without actually doing it any harm. Shoot your Mac Plus with an Uzi; bring your Quadra to its knees with a Magnum 44; or splatter your screen with the remains of Bill, who gets shot out of a cannon. A great stress reliever with realistic sound effects and gory visuals. (A shareware version, Madness-Rage, is available from on-line services and user groups. You can get it from *MacUser*'s on-line service, ZiffNet/Mac, in Library 3 of the Download & Support Forum, filename MAD.SEA). UV Wave, 722 Cobblestone Drive, Shreveport, LA 71106; 318-868-9944. $28.95. ★★★★

95. Intermission

Screen savers used to be advertised for monitor-burnout prevention, but nobody's pretending anymore — we all know that a screen saver's main purpose is to provide totally nonproductive fun on your Mac. So take a break from work, and play around with Intermission, which includes such great modules as a disco-dancing pig and dueling hand mixers, complete with sound effects. ICOM Simulations, 648 S. Wheeling Road, Wheeling, IL 60090; 708-520-4440. $49.95. ★★★½

96. Kaboom!

The Kaboom! control panel is based on SoundMaster, the popular shareware sound utility that lets you attach dozens of weird sounds to common Mac actions (emptying the trash, shutting down, and so on). You get dozens of digitized sounds, including lines from "I Love Lucy" and "Twilight Zone" as well as the voices of Richard Nixon, Ronald Reagan, and other celebrities. Nova Development, 23801 Calabasas Road, Suite 2005, Calabasas, CA 91302; 818-591-9600. $49.95. ★★★½

97. Mr. SoundFX

Like Kaboom!, Mr. SoundFX is a commercial version of the shareware SoundMaster utility. The twist here is that half the sounds are created by Michael Winslow, who rose to fame making silly noises in the movie *Police Academy*. So if you want your Mac to eject disks to the sound of Barry White saying, "I need you, baby," this product's for you. Prosonus, 11126 Weddington Street, North Hollywood, CA 91601; 800-999-6191 or 818-766-5221. $29.95. ★★★½

98. SimBush

Whether or not the American people give Barbara's better half another stab at the presidency, you can revel in hours of George's noted gift for rhetoric with SimBush, a freeware program that randomly mixes Bushisms from a Barbara Walters special aired earlier this year. As the program credits note, unlike with real politicians, SimBush gives you the option of using the Quit command. Available from on-line services and user groups. Free.

99. Smack It/Data Dog/Mini Mood

If Insanity is the violent stress reliever, Smack It, Mini Mood, and Data Dog are kinder, gentler therapy for frazzled Mac users. These cute stuffed replicas of the Mac come with tongue-in-cheek "manuals" and can be skewered to your office wall with thumbtacks, batted, or tossed. Computer Fun, 7343 Ronson Road, Suite H, San Diego, CA 92111; 619-279-1919. Smack It and Data Dog, $10.95 each; Mini Mood, $7.95.

100. *Totally Rad Mac Programs*

The lust for useless Mac products is insatiable. Following close on the heels of Bob LeVitus' books *Stupid Mac Tricks* and *Son of Stupid Mac Tricks* (which contained collections of public-domain programs such as Talking Moose) comes *Totally Rad Mac Programs*, by former *MacUser* staffer Owen Linzmayer. If you've ever wanted to get your Mac to sing every verse of "99 bottles" (or if you just want to change your Mac's desktop pattern), you'll find out how in this book. Sybex, Inc., 2021 Challenger Drive, Alameda, CA 94501; 800-227-2346 or 510-523-8233. $19.95.

MacUser **staffers Michele Hasson, Amanda Michael, and Bruce Mewhinney contributed to this article.**

The Multimedia Mac:

The Macintosh IIvx

Apple's newest desktop Mac comes loaded with multimedia bells and whistles, including an optional built-in CD-ROM drive and out-of-the-box QuickTime support.

By Russell Ito

Computers are like dogs. They age faster than humans. One of our years is equal to about seven of theirs. Given that, the Mac IIci is approaching its 21st birthday, because it was introduced nearly three years ago. It also means that it's ripe for replacement. While Apple has been spending the last three years broadening its appeal to the budget-conscious (with the Classic II, the LC II, and the IIsi), the mobile (with the PowerBooks), and the high-end (with the Quadras), mainstream desktop users have been left relatively untouched, so Apple has returned to the desktop with the Mac IIvx. (Of course, Apple isn't saying that it's killing the IIci. As usual, the official word is that the IIci will "continue to be sold as long as there is a demand," which Apple doesn't expect to be very long once the newer machine becomes available.)



PHOTOGRAPHY: STEVEN UNDERWOOD

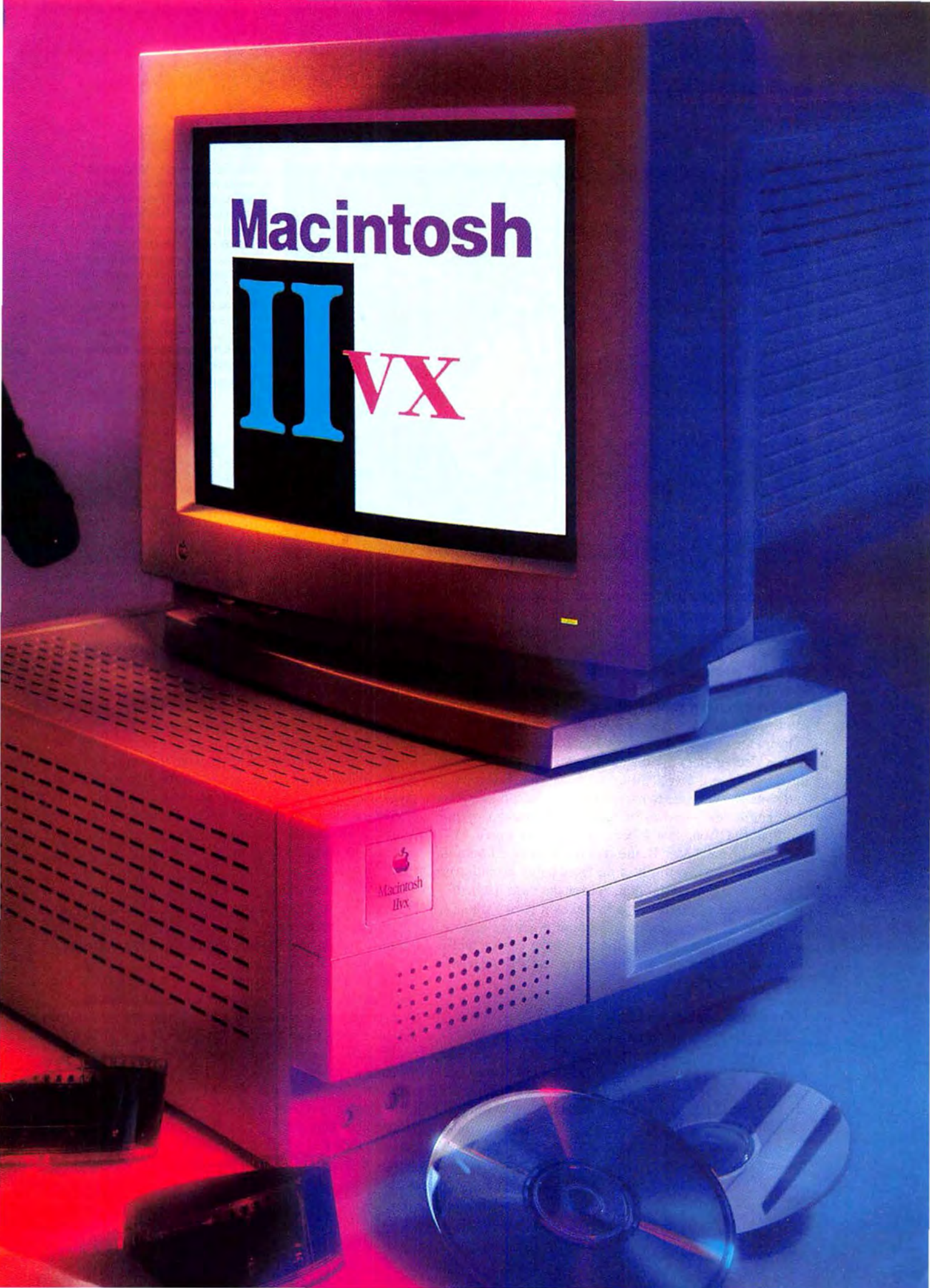

Macintosh
IIvx
Macintosh
IIvx



Figure 1: The new Macintosh Color Display replaces the Apple 12- and 13-inch RGB displays and does so at a lower price and with more features. A 14-inch Trinitron model, the new display stays with 640-x-480-pixel resolution and includes a tilt/swivel base for just $539 list ($260 less than the 13-inch RGB display). It's much brighter than the units it's replacing but doesn't provide any antiglare protection.

Although Apple has championed the Mac as a multimedia computer since its inception, Big Blue and its allies have made the most of the multimedia-personal-computer hype, making *MPC* a familiar, if not exactly common, acronym for *multimedia PC*. But Apple is battling back with the Mac IIvx, a desktop machine that's a match for its predecessor and that offers several multimedia features in both hardware and software.

From the outside, the IIvx is 1 inch wider and about 2 inches deeper than a IIci, but it's the box's industrial design that seems, well, different. Instead of the grooves and slots we've come to expect in a Macintosh case, the IIvx has holes — rows of holes. And instead of the familiar flat front that's been common to every Mac since the original Mac II, the IIvx has a recessed bottom edge, so the top two-thirds of the front panel extend over the bottom by about an inch. As for the case itself, it's metal instead of plastic, which makes it strong enough to support a 16-inch monitor without cracking and, as with the LC II and the IIsi, the top of the case actually wraps around the bottom, rather than just being a lid on top of a four-sided box.

Getting Under the Hood

Internally the Mac IIvx closely resembles the IIci — with some significant improvements, of course. The heart of the IIvx is a 32-megahertz 68030 with a 32-megahertz 68882 math coprocessor. These chips are about a third faster than the equivalent chips in the IIci. Like the LC and the IIsi before it, the IIvx includes DRAM on the motherboard in addition to SIMM slots for additional memory. With 4 megabytes on the motherboard standard, the IIvx can be upgraded to as much as 68 megabytes of RAM with the addition of four 16-megabyte SIMMs.

Of course, a new desktop machine wouldn't really be new without some form of a new PDS (processor-direct slot), and sure enough, the IIvx introduces yet another variant: the accelerator slot. Unlike Apple's previous PDS designs, which were basically general-purpose slots, the IIvx's accelerator slot is specifically intended for the addition of an accelerator card. The reason it can't be used for a cache is that Apple learned from the IIci experience and realized that an on-board cache was important, so it has soldered a 32K cache right onto the IIvx's motherboard, making the IIvx the second Mac with an on-board cache (the first was the IIfx). Another advantage of the accelerator slot's design is its placement. Unlike the PDSs in the IIfx and the Quadras and like the one in the IIci, the IIvx's accelerator slot sits next to the three NuBus slots, not in line with one of them, so you can fill the accelerator slot without losing a NuBus slot in the bargain (or vice versa).

The IIvx borrows some design elements from the Quadras, specifically their internal video circuitry. Although the IIci was the first Mac to have internal color video, it used main memory for its video RAM. As a result, using internal video, although convenient, significantly slowed the machine. Like the Quadras, however, the IIvx uses true VRAM for its video support, which not only makes it possible for the IIvx to display more colors than the IIci does but also makes the overall performance feel a little snappier. The IIvx comes standard with 512K of VRAM, enough to drive a monitor as

large as 16 inches at 8 bits (256 colors), but with the addition of another 512K VRAM SIMM, you can increase the pixel depth to 16 bits (32,000 colors) — all without taking up a NuBus slot for a video card.

Finally, the biggest factor in the MPC war is the IIvx's inclusion of a bracket for an internal 5.25-inch half-height device such as a CD-ROM drive. Because the IIvx can also house a 3.5-inch half-height hard drive, Apple has included a separate SCSI bus (as it did in the Quadras), so you can still daisy-chain six additional SCSI devices off the IIvx's SCSI port. Although Apple will sell a CD-ROM-equipped IIvx (more on that in a moment), the bracket isn't restricted to holding a CD-ROM drive. Apple will sell only a CD-ROM drive, but you can install a DAT drive, a magneto-optical drive, or a SyQuest drive if you wish.

The IIvx with CD-ROM

Although the IIvx will be available without a CD-ROM drive, Apple is expected to push the CD-ROM-equipped model — together with the Performa 600 CD, the first such unit Apple released. As a QuickTime machine in particular, the CD-ROM IIvx will be especially attractive, because it will come standard with 5 megabytes of RAM and 1 megabyte of VRAM, so it'll be ready to play back QuickTime in 16-bit color right out of the box. (QuickTime, not coincidentally, is optimized for 16-bit color.)

Apple's new CD-ROM drive, the AppleCD 300i, is an internal drive that doubles the disc-rotation speed for double the throughput, raising it to 300K per second. The increased throughput will improve the frame rate when you play back QuickTime movies but shouldn't have an appreciable effect on other CD-ROM tasks such as searches and disk access. The drive, based on a Sony mechanism, will be available in an external version in January 1993.

In addition to hardware, Apple is including CD-ROM software, called Photo CD Access. Thanks to the new QuickTime (see the related story on System 7.1, in this issue), the CD-ROM IIvx will be able to read Kodak's Photo CD format directly, so you'll be able to compress and decompress Photo CD images on the fly. What's more, Apple's software can take advantage of Photo CD's multiple-session capability. In addition, the software is smart enough to group images by resolution and to create thumbnails automatically, so you can quickly navigate through the masses of images you can pack onto a single CD-ROM.

For those who want to view a lot of images automatically, Apple will also provide a program called Slide Viewer that creates a QuickTime movie of all the images on a Photo CD and then plays them back one after another, just like a slide projector on a timer. The movie can be saved independently of the disc, so you can eject the disc and still retain the slide show for viewing. Not only that, but these movies retain references to the disc, so you can use them to easily catalog the contents of your CD-ROMs.

And as if its own software weren't enough, Apple is getting back into the bundling business. Ten CD-ROM titles will be included in the box with the CD-ROM IIvx. Titles will include From Alice to Ocean (Against All Odds Productions); Mozart: String Quartet in C Major (Voyager); Nautilus (Metatec/Discovery Systems); Kodak Photo CD Sampler; Cinderella (Discis); and four collections from Apple, including application and game samplers.

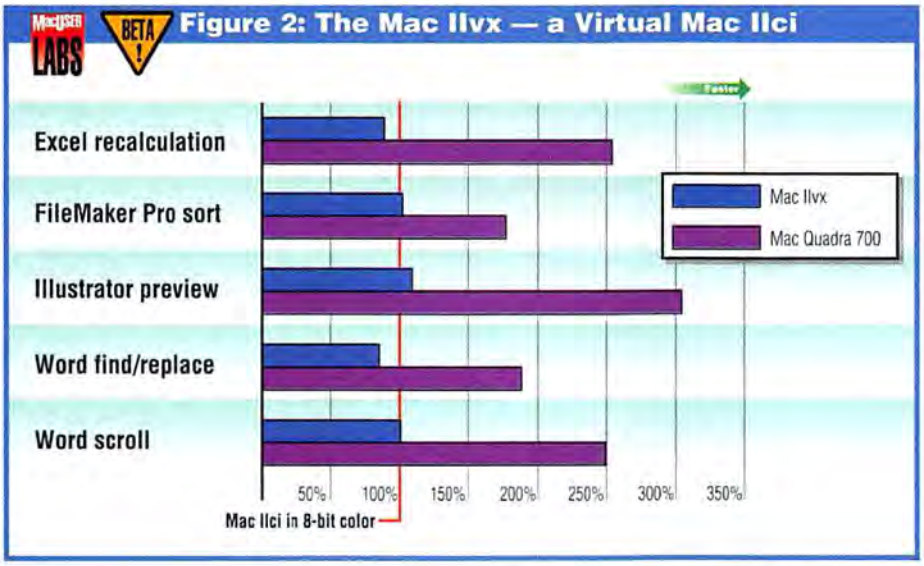


Figure 2: Although the results weren't bad, our preproduction Mac IIvx's performance wasn't exactly thrilling either. Comparing a prerelease IIvx with a IIci equipped with a 32K cache card, each equipped with 5 megabytes of RAM and an 80-megabyte hard drive (shipping configurations) and with the internal video set to 8 bits (256 colors), we found the IIvx to be essentially the same as the IIci. The differences of 10 percent or so shown here are undetectable in normal use.

Figure 3: Inside the Mac IIvx

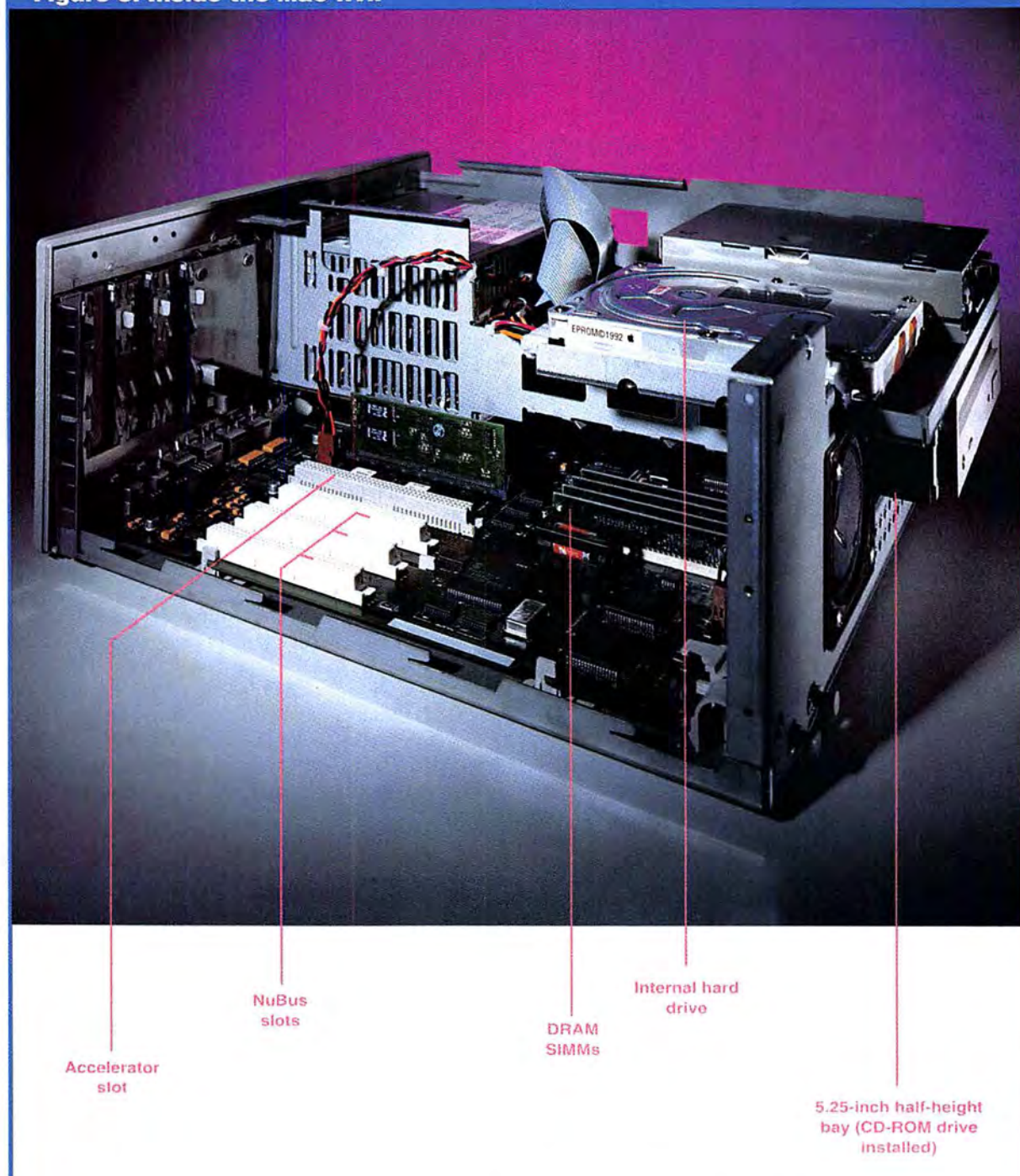


Figure 3: The Mac IIvx is slightly larger than its predecessor, the IIci, and looks somewhat different both inside and out. The IIvx box has a space for a 5.25-inch half-height device, such as the optional CD-ROM drive that Apple is expected to bundle with most of the units, in addition to a hard drive and a floppy drive. The motherboard enhancements include 4 megabytes of DRAM and a 32K cache soldered onto the board, as much as 1 megabyte of VRAM for 16-bit video (32,000 colors), as much as 68 megabytes of RAM total, and a dedicated accelerator slot.

A Disappointing Performance

With its faster processor, on-board cache, and VRAM, we expected the IIvx to trounce the IIci and establish a new standard for the middle of Apple's desktop line. Wrong. Our test results were, at best, disappointing.

But before we give you the bad news, we have to give you an important caveat: Your mileage may differ. Our tests were performed on extremely early models — not on production units. In fact, our tests were completed nearly four months prior to actual shipping of the IIvx, so the final machine might perform with different results from what you're about to read. Nonetheless, Apple confirmed our results (albeit reluctantly).

What we found out was that the IIvx's performance is a virtual wash with that of a IIci equipped with a cache card. Because we consider a variance of 10 percent or less to be undetectable by users, we can say that you shouldn't expect to see any difference between a IIvx and a IIci with a cache card. In our tests, the IIvx was anywhere from 10 percent slower to 10 percent faster than a similarly equipped IIci. In other words, a comparison of comparably equipped 5-megabyte models with 80-megabyte hard drives (actual shipping configurations from Apple) and 8-bit color, using internal video, show them to be the same.

In fact, the only way we could keep the IIvx from falling behind the IIci in any test was to, in effect, slow down the IIci. One of the vagaries of the IIci is that a unit that's been upgraded to 8 megabytes can actually be slower than a 5-megabyte model. The reason is that in both cases, the memory is kept in two banks and a IIci using internal video relies on the first bank for video in addition to the system and applications. So with 4 megabytes in the first bank, the CPU has to wait for the video to refresh before it can deal with the applications and system overhead. When we compared an 8-megabyte IIci with a IIvx, the IIvx was at least the equal of its predecessor and as much as 15 percent faster — but of course, an 8-megabyte IIci isn't a shipping configuration.

Just Like Old Times

Officially, the IIvx isn't a replacement for the IIci. In fact, Apple says the IIvx is an upgrade machine for the compact Macs — the Plus, the SE, and the Classic. You'll notice that the LC and the IIsi are not mentioned. For users of the compact Macs, the IIvx may be an attractive option: It's reasonably priced and powerful, and it includes a lot of what you need in order to investigate the world of multimedia — including an internal CD-ROM drive. Plus it has the advantage of better internal-video support than the IIci's (as much as 16 bits instead of 8) and more than twice the memory capacity (68 versus 32 megabytes).

You may be wondering what the difference is between the IIvx and the similar-looking Performa 600 "consumer" Mac, which Apple announced in September. Physically, they're almost twins. The Performa, however, with no FPU and no on-board cache, is significantly slower. The Performa should sell for less than the IIvx, though, so if you're willing to trade raw performance for Performa 600 features such as bundled software and on-site tech support, the latter might be an alternative.

On the other hand, the IIci still looks pretty attractive. Its performance is at least as good as the new machine's, and it's sure to be discounted as soon as the IIvx begins shipping. For those who aren't concerned with multimedia and CD-ROMs, the IIci remains an excellent choice as a desktop machine. And for those thinking about the future — and upgrades — each machine has an upgrade path to a 68040 CPU. The IIci can be upgraded to a Quadra 700 now, and Apple has preannounced its plans for a 68040-logic-board upgrade path for the IIvx. Either way, you'll stay current for around 2 more human years — that's 14 computer years.

Russell Ito is a *MacUser* senior editor and middle-aged (in computer years) Mac user.

Table 1: Features of the Macintosh IIvx

	Macintosh IIvx
List price (configuration)	$2,949 (4/80, 512K VRAM) $3,319 (4/230, 512K VRAM) $3,219 (5/80 with CD-ROM and 1 MB of VRAM)
CPU	32-MHz 68030
FPU	32-MHz 68882
RAM	4 MB on motherboard; expandable to 68 MB
Cache	32K on-board
Expansion slots	accelerator slot three NuBus slots
Storage devices	one SuperDrive one 3.5-inch hard drive space for 5.25-inch half-height device such as CD-ROM, DAT, SyQuest, or magneto-optical drive
Dimensions (L x W x H)	16.5 x 13 x 6 in
Internal video	512K VRAM standard for 8-bit color (256 colors) on monitors as large as 16 inches; expandable to 1 MB for 16-bit color (32,000 colors) on monitors as large as 16 inches
Network support	LocalTalk

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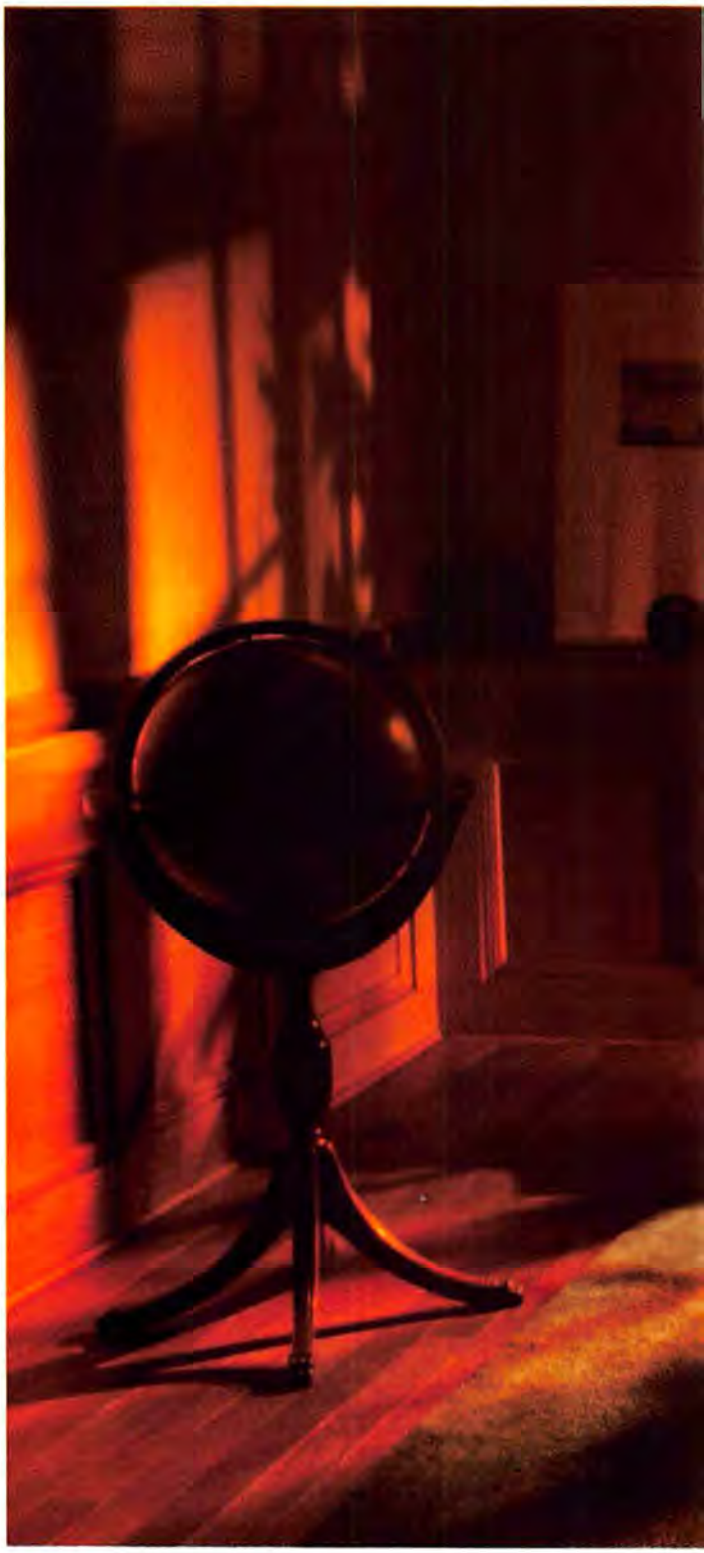
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And meet Wizards, step-by-step guides that walk you through complex tasks. The CrosstabWizard, for example, creates summary tables from a database for you: it prompts you, takes the information you give it, and creates a crosstab. It's that easy.

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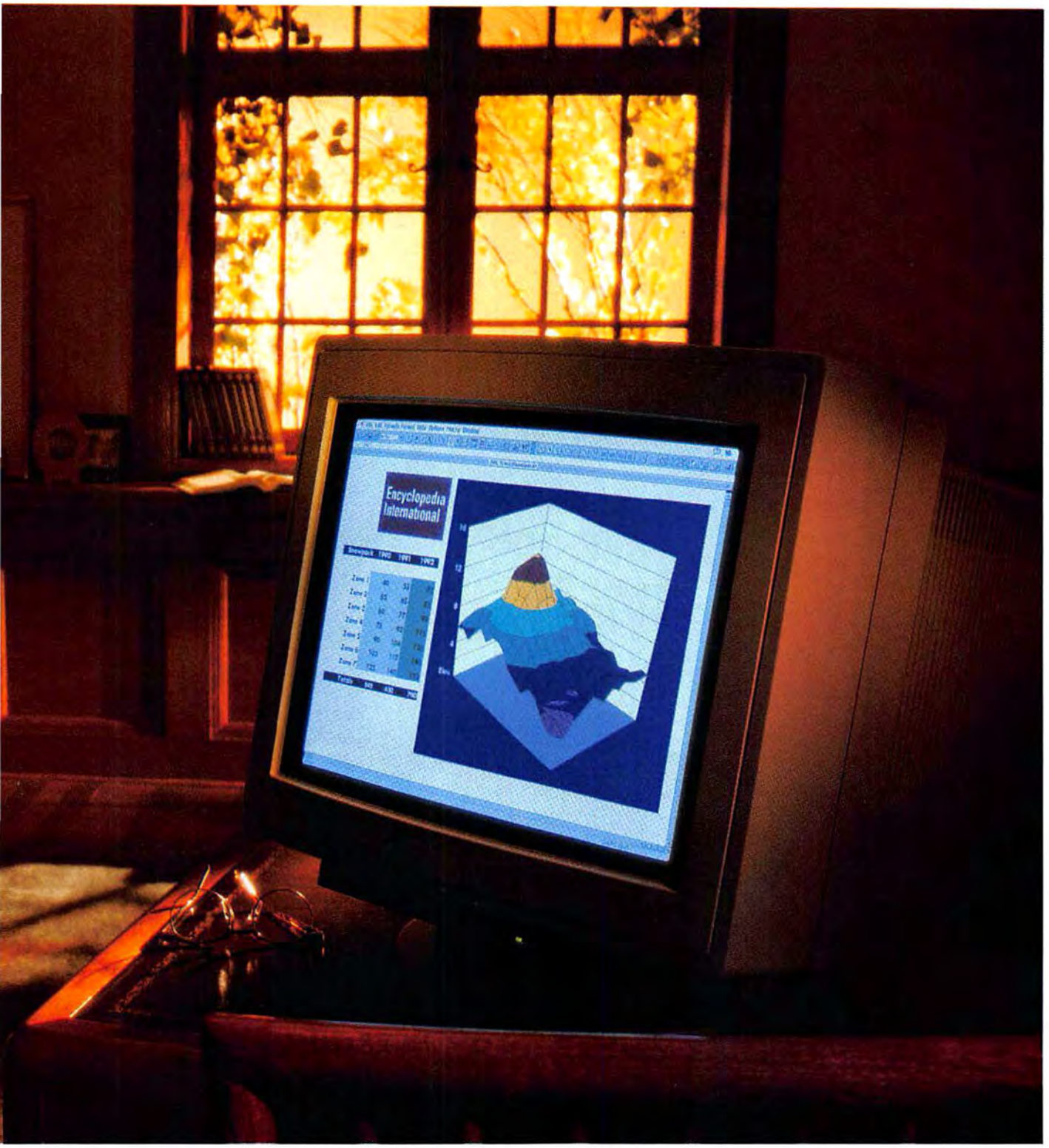
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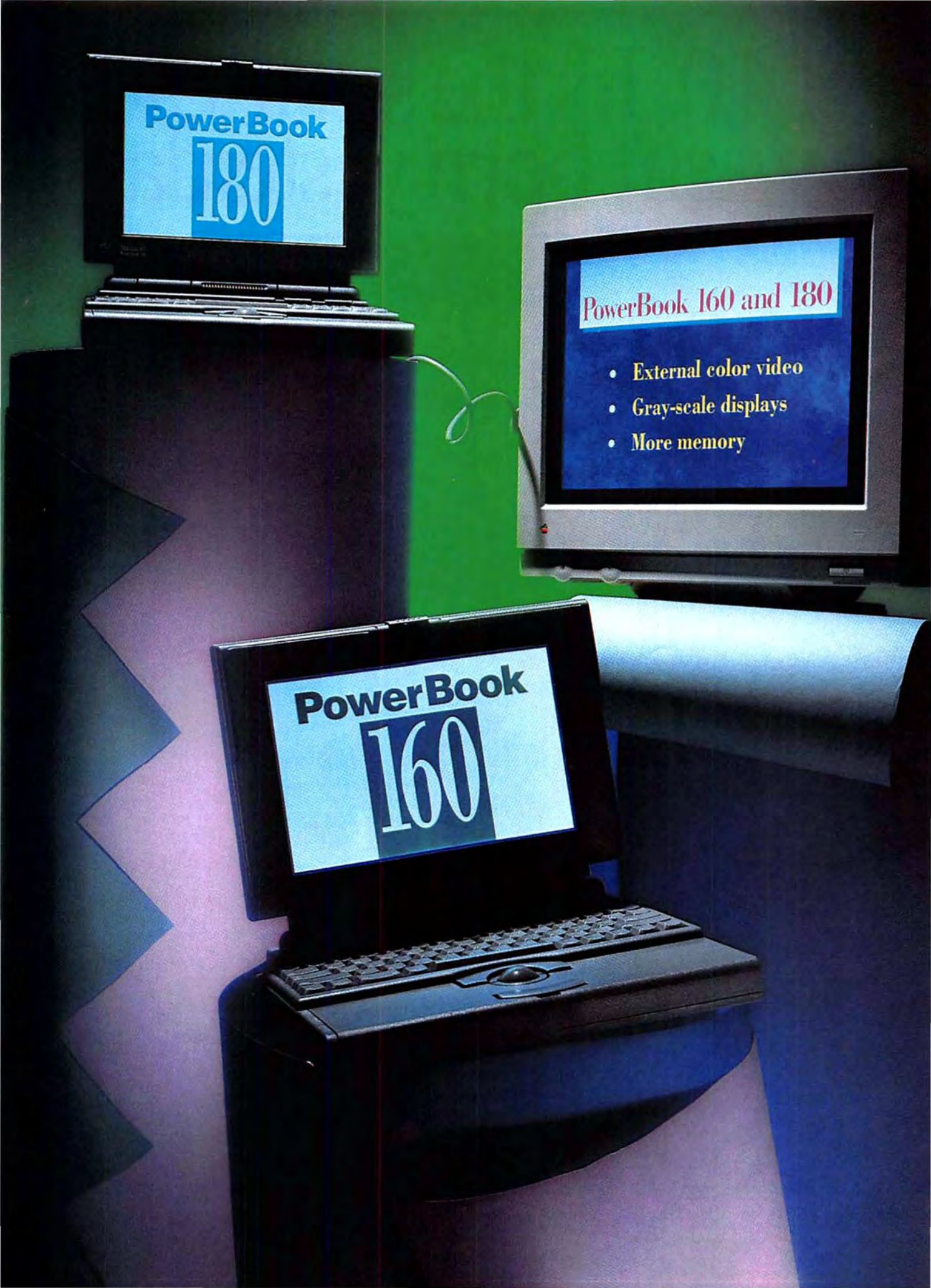
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PowerBook
180
PowerBook 160 and 180
• External color video
• Gray-scale displays
• More memory
PowerBook
160

Presenters' Portables:

The PowerBook 160 and 180

Color video-out, gray-scale displays, more memory, and faster performance. The new PowerBooks are the most powerful and complete Apple notebooks so far.

By Russell Ito

PHOTOGRAPHY: STEVEN UNDERWOOD

Gray. Just the word conjures up a flood of negative images: age, facelessness, blandness. *Gray* is definitely not a word you're likely to see in any ad copy soon. On the other hand, gray is exactly what a lot of PowerBook owners have been clamoring for. Although the PowerBook 170's active-matrix screen was dazzlingly fast and sharp, many users complained to Apple that it wasn't gray-scale and that System 7 demanded at least a gray-scale display. Well, Apple listened and responded. The newest top-of-the-line PowerBooks, the PowerBook 160 and 180, include gray-scale displays and much more.

Knowing that it was working from a solid base, Apple wasn't about to make too many radical departures in the new high-end PowerBooks. The 160 and 180 are based on the PowerBook 170, which they replace. The weight (6.8 pounds), size (11.25 x 9.3 x 2.25 inches), and case are all the same as the 140 and 170 models'. The changes are in a few specific areas of user concern: better displays, faster performance, more storage, more memory, and color-video-out support.

The PowerBook 180

The new ace in the PowerBook line is the PowerBook 180. It's a 33-megahertz 68030 model with a 33-megahertz 68882 math coprocessor, which makes it roughly a third faster than the PowerBook 170. The 180 comes with 4 megabytes of pseudostatic RAM soldered onto the motherboard, and it can be expanded to 14 megabytes with additional SIMMs (nearly double the 170's maximum of 8 megabytes). Apple is also offering larger hard drives than before, topping out at 120 megabytes. Like the 170, the 180 has an active-matrix display, but unlike the 170's, this one is a 4-bit model (16 grays). The screen is just as fast and bright as what we've come to expect, but when you view it from a sharp angle, you can see a silvery shimmering that's a consequence of the gray-scale capability (for specifics on how Apple's gray-scale panels work, see the "How It Works: Gray-Scale LCD Panels" sidebar).

The PowerBook 160

The PowerBook 160 is very much like the recently released PowerBook 145. It uses a 25-megahertz 68030 and doesn't include an FPU — even as an option. Of course, the lack of an FPU doesn't mean much, unless you're planning to use your PowerBook for lots of heavy-duty number crunching. Like the 180, the 160 offers a maximum RAM capacity of 14 megabytes and comes with 4 megabytes soldered onto the motherboard. Apple's largest hard drive for the 160 is 120 megabytes. The 160 is also a 4-bit gray-scale model, but its screen is a Film Supertwist Nematic LCD gray-scale panel instead of an active-matrix one.

Shared Advantages

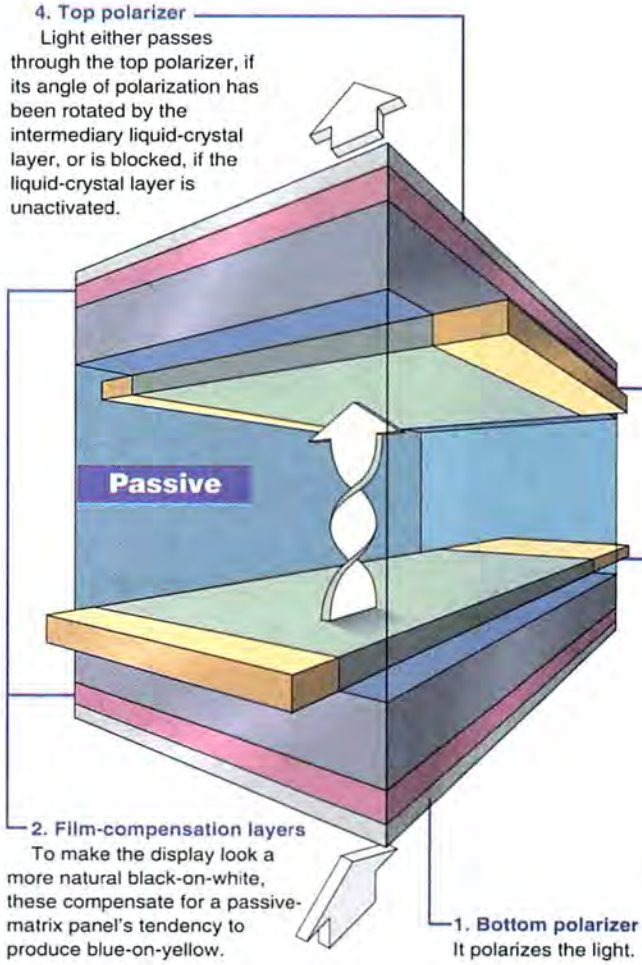
Although the PowerBooks were immediate hits, the biggest omission from their feature set was the lack of direct video output. This was especially galling, given that Apple was positioning the machine as being ideal for mobile presenters and the PowerBook 140 and 170 had 32-bit Color QuickDraw in their ROMs. Apple tried to turn this disadvantage into a "third-party opportunity," but that really didn't wash, so it has solved the problem itself by including direct video support in both the 160 and the 180.

With 512K of VRAM on board, the 160 and 180 can drive color monitors as large as 16 inches (including 15-inch portrait displays) at 8 bits (256 colors) — but Apple has done more here than just provide a display option. With Apple's new PowerBook Display control panel, the external monitor can function in either of two ways (see the "What's New in Your PowerBook's System" sidebar for information on Apple's other PowerBook-software changes). In Dual Display mode, the external monitor functions just like a second monitor. You can position the menu bar on the PowerBook's display or the external monitor's, and you can specify which side of the PowerBook display is the virtual boundary between the displays. Not only that, but you can actually set the monitors up to different bit depths, so you can have the PowerBook running in 4-bit gray scale while the external monitor is displaying its images in 8-bit color. In Video Mirroring mode, the external monitor's screen becomes a larger, mirror image of the PowerBook screen — this mode is especially attractive for presenters who want to control a presentation from the PowerBook while sending images out to a bigger screen.

How It Works: Gray-Scale LCD Panels

The gray-scale displays in the PowerBooks provide 16 levels of gray, but technological differences between them affect their cost and quality. The PowerBook 180 uses an active-matrix design, which is fast but expensive. The passive-matrix panels in the 160, 210, and 230 aren't as speedy or as sharp, but they're easier to manufacture and cost a lot less.

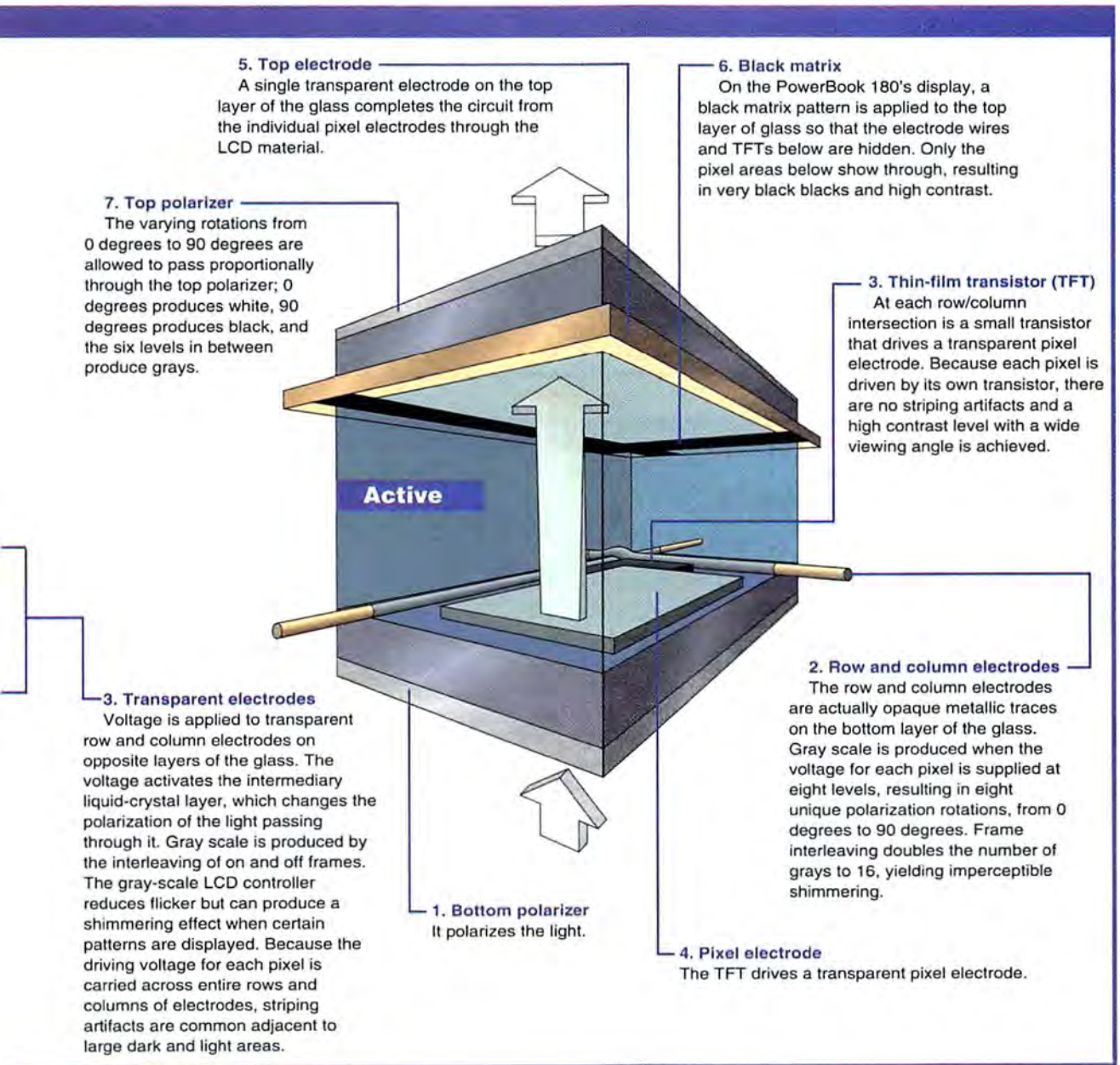
— Jeffrey S. Pittelkau



To let you take advantage of these capabilities, Apple includes a little adapter cable for connecting a monitor to the PowerBook.

One feature that was unique to the PowerBook 100 was its ability to be connected to a SCSI chain as a disk drive (with a unique Apple cable, of course). This was a relatively easy way to transfer large amounts of data quickly, but you couldn't do it with a 140 or 170. With the 160 and 180, however, you can. Apple still uses its unique 29-pin cable to achieve this, and you still have to buy it separately, but at least you have the choice.

Two additional features round out what's new in the 160 and 180. Both machines have a back-panel "security slot" for locking them to a desk or to other furniture (this is the system Kensington Microware has been offering for a year), and both machines have a built-in microphone. The mike sits just under the screen, and the only indication that anything is there is a few tiny holes in the plastic. We're not too sure how many people will actually use this feature — especially considering how much bigger sound makes a file and how much more disk spinning that entails — but it is available.

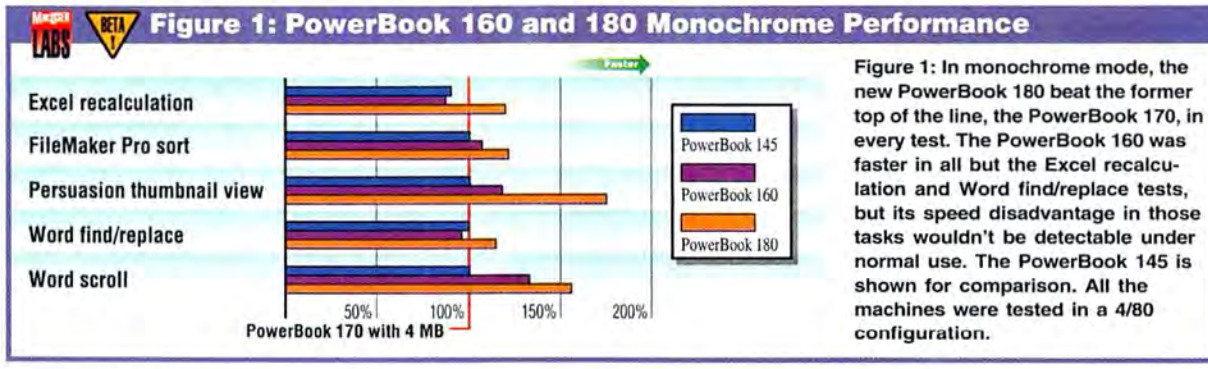


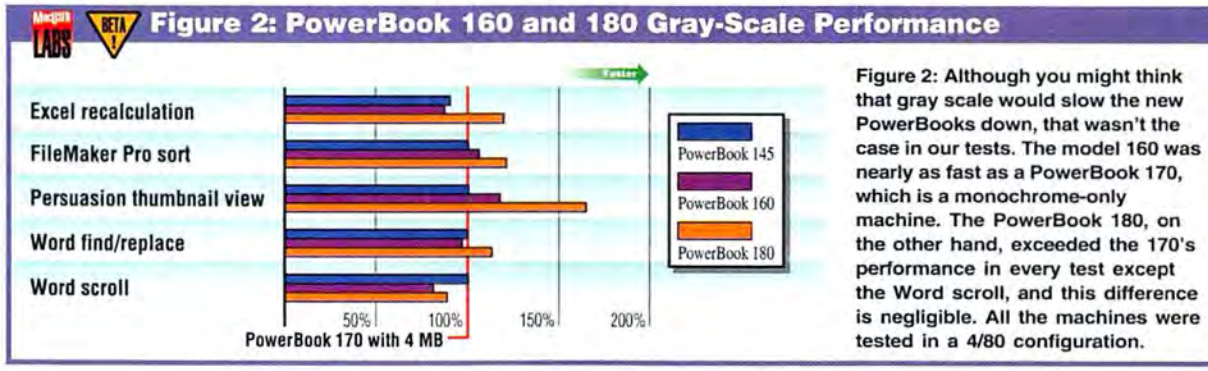
Stand-out Performers

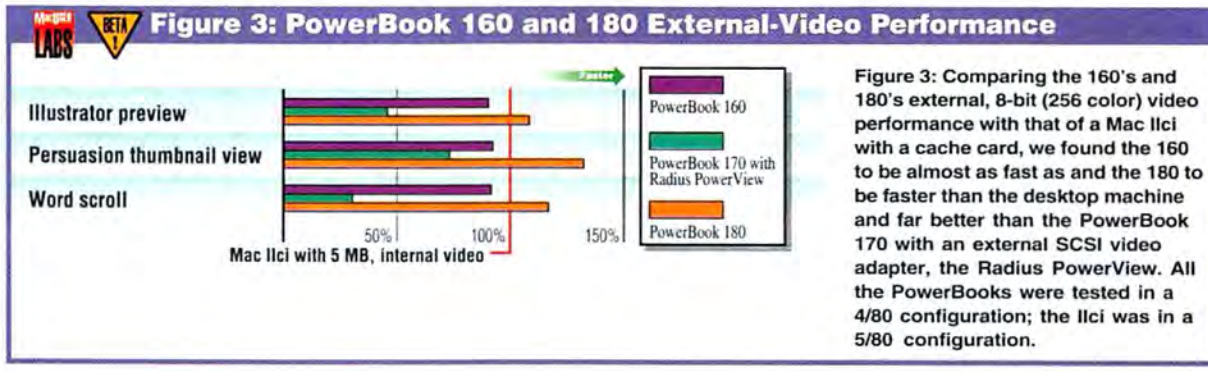
As stand-alone notebook computers, the PowerBook 160 and 180 perform admirably. In monochrome, the 160 virtually matched the PowerBook 170, and the 180 was anywhere from 15 percent to 75 percent faster than a 170 in every test we ran. Although the 160's performance slipped below that of the 170 in the Excel-recalculation and Word find/replace tests, the margins of difference were negligible.

When we looked at the 160 and 180 in gray-scale mode (16 levels), their performance was similarly snappy. Although there was a slight performance hit, even the slower model 160 worked consistently within 20 percent of the performance of a PowerBook 170 running in monochrome. The 180, on the other hand, exceeded the 170's performance in every test except one (the Word scroll) and was nearly three-quarters again as fast as a PowerBook 170 in the Persuasion test. So if you thought getting gray scale would seriously compromise overall performance, think again. The new PowerBooks are as fast as or faster than their monochrome predecessors.

If you do a lot of presentations on the road, the internal video in the 160 and 180 won't disappoint you either. When we compared the 8-bit-color external-video support in the 160 and 180 with the same circuitry in the Mac IIci, we found the PowerBooks' performance to be excellent. The 160 was only about 10 percent slower than the desktop machine — not a noticeable difference







— and the 180 was faster in every test, again doing exceptionally well in the Persuasion test, where it bested the IIci by about 30 percent. When we compared the 160 and 180 with a PowerBook 170 equipped with Radius' PowerView SCSI video adapter, it was no contest. The new machines were anywhere from 25 percent faster to nearly four times as fast as the SCSI box. So if you're used to giving presentations at your desk, you can rest assured that using the new PowerBooks will make it possible to dazzle 'em at least as effectively on the road.

What's New in Your PowerBook's System

Three new control panels — PowerBook, PowerBook Display, and AutoRemounter — are included in System 7.1.

The PowerBook control panel, version 7.1 (see Figure A), is a reworked version of the control panel of the same name in 7.0.x. The basic screen provides a single slider for controlling the timing of both hard-disk spindown and CPU sleep — version 7.0 gave you two separate controls. It offers users a somewhat vague choice on the continuum between "maximum performance" — meaning a longer wait before spinning down the drive or putting the CPU to sleep — and "maximum conservation."

This control panel also lets you set the SCSI ID of your PowerBook's internal hard-disk drive when it is used in SCSI Disk Mode — as an external disk drive connected to another Mac.

A secondary battery-conservation control panel (see Figure B) provides additional controls for managing battery life. *Processor Cycling* refers to a special rest mode (not the same as sleep), in which the processor, awake but not actively doing anything, runs at a much slower rate than when it is actively working. *Processor Speed* refers to the ability to step down the speed of the processor to 16 megahertz when it's doing active work. Processor cycling, which is on by default, has little effect on most of the work you do on your PowerBook. Reducing processor speed, on the other hand, is like telling a IIci to perform as slowly as a IIsi.

The PowerBook Display control panel (see Figure C) serves two functions. It controls the amount of idle time (no mouse or keyboard activity) after which the backlight on the PowerBook screen dims. And for PowerBooks with video-output ports — the 160, 180, and Duos when used with the MiniDock — the control panel lets you turn Video Mirroring mode on or off when your PowerBook is connected to an external monitor.

AutoRemounter (see Figure D) automates the process of reconnecting to frequently used AppleShare and file-shared volumes. Before your PowerBook goes to sleep or is shut down, AutoRemounter records the names of all remote shared volumes mounted on your desktop. When your machine wakes up while connected to the network or is reconnected to the network after being disconnected, AutoRemounter attempts to mount the volumes it remembers being previously mounted. (A useful utility would be an AutoRemounter that would let users who need to move their PowerBooks from one network to another save multiple sets of automatically remountable volumes — and choose a LaserWriter printer more easily.)

— Henry Bortman

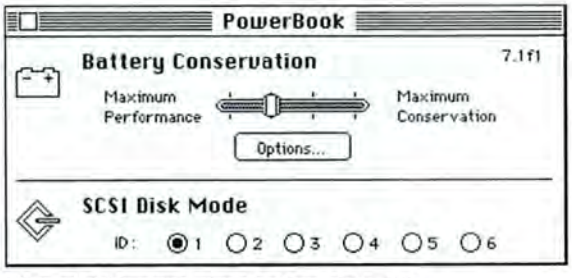


Figure A: The new PowerBook control panel.

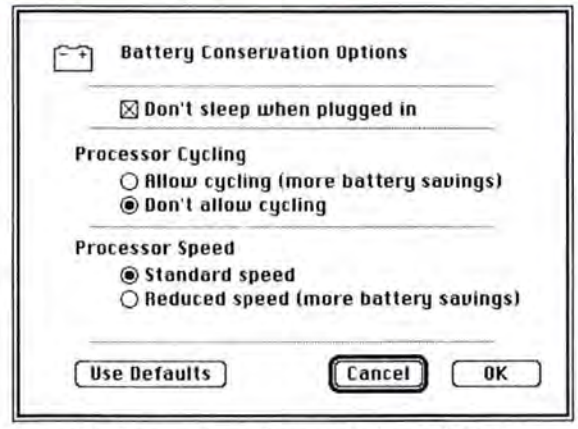


Figure B: The new PowerBook control panel's Battery Conservation Options dialog box.

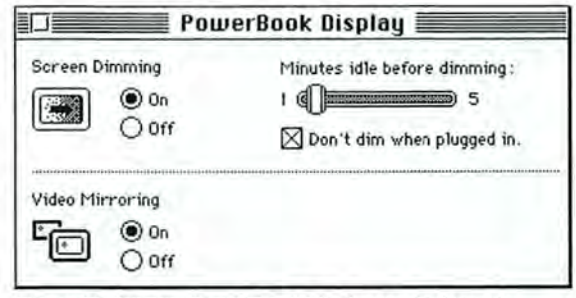


Figure C: The new PowerBook Display control panel.

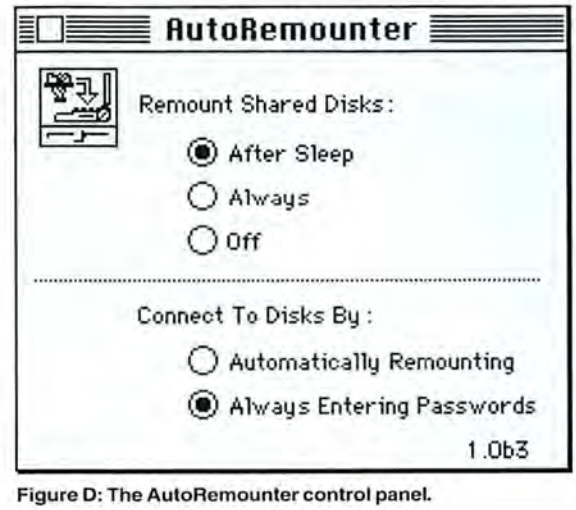


Figure D: The AutoRemounter control panel.

The New Power

The PowerBook 180's performance is a virtual match for the Mac IIci's. The 180 is faster than the PowerBook 170, which it's replacing. It offers some significant new features, including a gray-scale display, nearly double the internal memory capacity, and video-out, all for $3,869. If you've been wavering about getting a PowerBook, there's no reason to hesitate anymore — unless you really need a color notebook. That, no doubt, is coming ... someday.

The PowerBook 160 offers performance that matches the former top of the line and does so for significantly less money than the PowerBook 180 while still offering most of the advantages of the 180: more memory capacity, a gray-scale display, and video-out. Choosing between the 160 and 180 is mainly a question of cost and utility. The 180 offers a better display and better performance, which isn't to say that the 160 is poky, just that users who demand the best in every category will want to go with the 180. In choosing between the 160 and 180, you have to weigh whether the active-matrix display, the slight speed advantage, and the FPU are worth the extra $1,000.

Apple expects the 160 to be the standard-bearer for the PowerBook line — that raises questions about the recently released PowerBook 145. The PowerBook 145's performance is virtually identical to that of the 160, yet the 160 offers a better display, more memory capacity, a larger hard drive, and video-out — for just $300 more than the 145's list price. Given the small price difference, it's hard to imagine anyone quibbling with the figures enough to favor the 145. However, if Apple drops the price on the 145, which it may very well do, value-conscious users would do well to take a hard look at what it has to offer. After all, what we're really talking about in the PowerBook 145 is a PowerBook 170 with a monochrome LCD screen and no external video support, and if the top-of-the-line's performance was good enough a year ago, it still might be.

The PowerBook 160 and 180 should be more than enough computer for just about anyone who needs a mobile machine. With the exception of color and high-speed networking, the new PowerBooks lack nothing. Usually turning gray in a year is a bad sign, but this time, going gray is a mark of distinction.

Russell Ito is a *MacUser* senior editor whose workday has expanded since the introduction of the PowerBooks.

Table 1: Features of the PowerBook 160 and 180

	PowerBook 160	PowerBook 180
List price	$2,429 (4/40) $2,789 (4/80) $3,149 (4/120)	$3,869 (4/80) $4,229 (4/120)
CPU	25-MHz 68030	33-MHz 68030
FPU	none	33-MHz 68882
RAM	4 MB of pseudostatic RAM on motherboard, expandable to 14 MB	4 MB of pseudostatic RAM on motherboard, expandable to 14 MB
Display type	Film Supertwist Nematic LCD	active matrix
Display dimensions	640 x 400 pixels	640 x 400 pixels
Video support	4 bits (16 grays)	4 bits (16 grays)
External-video support	as many as 8 bits (256 colors) on displays as large as 16 inches	as many as 8 bits (256 colors) on displays as large as 16 inches
Dimensions (L x W x H)	11.25 x 9.3 x 2.25 in.	11.25 x 9.3 x 2.25 in.
Battery type (life)	nickel-cadmium (2.5 – 3 hr)	nickel-cadmium (2.5 – 3 hr)
Weight	6.8 lb	6.8 lb
Network support	LocalTalk	LocalTalk
Storage devices	one SuperDrive one 2.5-inch hard drive	one SuperDrive one 2.5-inch hard drive
Ports	AC adapter audio-in/out optional internal modem SCSI (HDI-30) ADB two serial (printer/LocalTalk and modem) video-out security slot	AC adapter audio-in/out optional internal modem SCSI (HDI-30) ADB two serial (printer/LocalTalk and modem) video-out security slot

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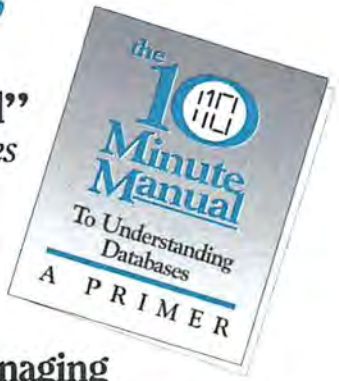
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The Convertible Mac:

The Macintosh Duo System

It's a notebook Mac! It's a desktop Mac!
No, it's the Macintosh Duo System.
The age of the dockable portable is here.

By Russell Ito

Convertibles are in. With the wind in your hair and bugs in your teeth, the thrill is back. A convertible's uniqueness is a great part of its appeal, as is versatility. Being able to use the same thing in several ways is a big plus in these recessionary, value-conscious times. We've certainly witnessed the convertible trend in software: Just look at the popularity of integrated packages. Now it's hardware's turn.

The Macintosh Duo System is Apple's first convertible computer system: It's both a desktop Mac and a fully functional notebook computer. The PowerBook Duo 210 and the PowerBook Duo 230 are the smallest, lightest notebooks Apple has ever produced, yet their performance is equal to that of the latest top-of-the-line PowerBooks, the 160 and the 180. When used with the Duo Dock desktop base, the PowerBook Duos give you a desktop system with all the power and functionality you'd expect from a stand-alone desktop machine. What you also get is more gadgets than you can find in Batman's utility belt.

PHOTOGRAPHY: STEVEN UNDERWOOD


PowerBook
Duo 210
PowerBook
Duo 230

The PowerBook Duo 210 and 230

Although the PowerBook 100 wasn't a big hit, its form factor was a success with anyone who gave the little guy a chance. Apple apparently realized this, because the 210 and the 230 have basically the same form — with some changes, of course. The PowerBook Duos measure just 10.5 x 8.5 x 1.5 inches and weigh only 4.2 pounds. The displays are barely three-eighths of an inch thick.

The 230 is the top-of-the-line model, powered by a 33-megahertz 68030. The 210 uses a 25-megahertz 68030. Neither comes with a floating-point unit (FPU), nor can you install one as an option. (You *can* install one in the Duo Dock, but more on that later.) Each model comes with 4 megabytes of RAM standard, which can be boosted to 24 megabytes. Apple, however, will not be offering anything larger than 8-megabyte memory expansion, so you'll have to look to third parties.

And you will have to look for a new kind of memory, because the 210 and 230 use an entirely new motherboard design. The motherboard/daughterboard design of all the other PowerBooks has been dropped for the Duo System. The 210 and 230 use a more conventional motherboard design, with connectors on the right edge for a memory board and an internal modem (yes, modems for the Duo System will also have to be different from PowerBook modems).

The 210 is available only with an 80-megabyte hard-disk drive; the 230 comes with either an 80-megabyte or a 120-megabyte hard drive. Like the PowerBook 100, neither comes with an internal floppy-disk drive, but an optional external unit is available (it's the same unit Apple sold for the PowerBook 100).

Each model's display is a backlit, 4-bit (16 level), gray-scale LCD panel. Fortunately, Apple has provided electronic contrast and brightness controls, so adjusting the displays is easy. Some users, however, may be disappointed that Apple decided against an active-matrix display for the 230.

The keys on the 210 and 230 keyboards are slightly springier and much quieter than those of previous PowerBook models. Users frustrated at the lack of a Caps Lock indicator will be happy to know that the new models have a green LED on the Caps Lock key to indicate that Caps Lock is on.

Unfortunately, Apple has also seen fit to alter the trackball. Although it's still usable, the new trackball is significantly smaller than the original, and Apple's industrial-design team decided to recess the buttons. Instead of extending up from the keyboard, the buttons actually recede, wrapping around the trackball. The whole thing ends up looking like a sink drain. We were used to the convex buttons on the previous models, so these concave ones didn't win any points with us.

For the power-hungry, the 210 and 230 use a new, quick-recharge battery and offer an energy-conserving auto-sleep function. The new battery, a nickel hydride unit, is smaller and lighter than the PowerBook 100's lead-acid battery, which was the smallest and lightest Apple had built until now. More important, it can recharge to 100 percent in just one hour. Battery life remains 2.5 to 4 hours, but to help extend that, the 210

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Figure 1: PowerBook Duo 210 and 230 Monochrome Performance

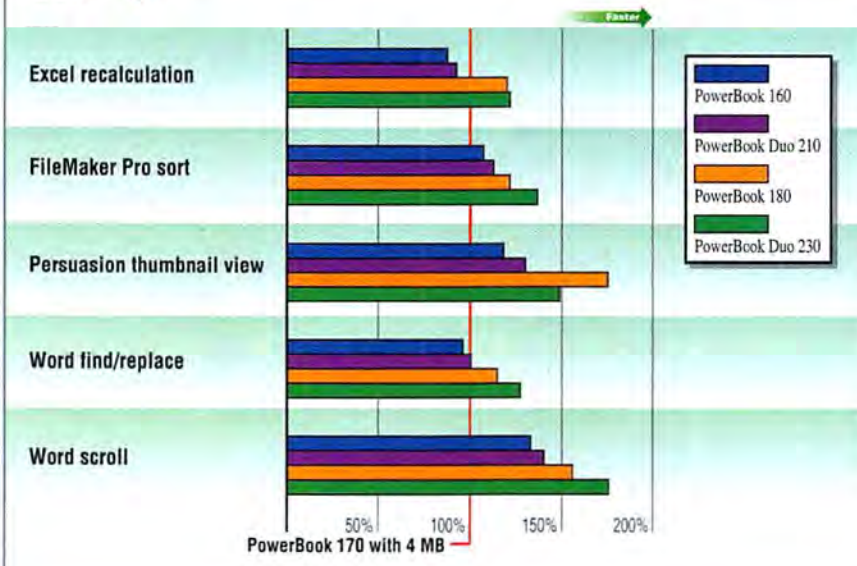


Figure 1: In monochrome, the PowerBook Duo 210 and 230 are more than a match for their stand-alone rivals, the PowerBook 160 and 180 and the earlier model 170. The 210's performance is roughly the same as the 160's, which makes it slightly faster than the 170 overall. The 230 is roughly equivalent to the 180, making it about one-third faster than the 170 overall. The 210 and the 230 were tested in a 4/105 configuration, and the 160, the 170, and the 180 in a 4/80 configuration. Although the 105-megabyte drive will not be shipping from Apple, it was all Apple could supply for the 210 and the 230 at the time of our testing. It should perform similarly to the 80-megabyte unit Apple will ship.

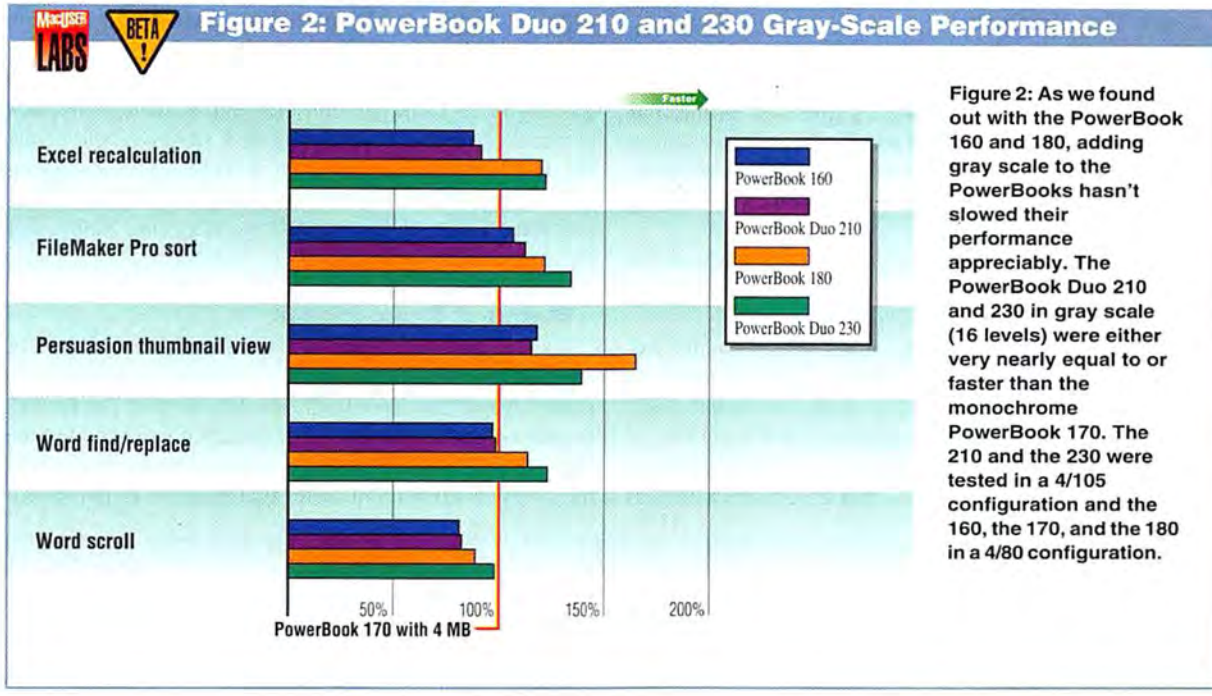


Figure 2: As we found out with the PowerBook 160 and 180, adding gray scale to the PowerBooks hasn't slowed their performance appreciably. The PowerBook Duo 210 and 230 in gray scale (16 levels) were either very nearly equal to or faster than the monochrome PowerBook 170. The 210 and the 230 were tested in a 4/105 configuration and the 160, the 170, and the 180 in a 4/80 configuration.

and 230 automatically go to sleep when you close them.

And if you've been annoyed by those low-battery warnings that force you to quit all your applications and do a full shutdown just to change the battery, you're in luck: The 210 and 230 have internal lithium backup batteries that let you change batteries without shutting down the computer. You simply pull out the dead battery and slip in a fresh one. Depending on what you're doing at the time, the backup battery is supposed to be good for several minutes, so even if you pull out the dead battery and can't find a replacement right away, you're safe.

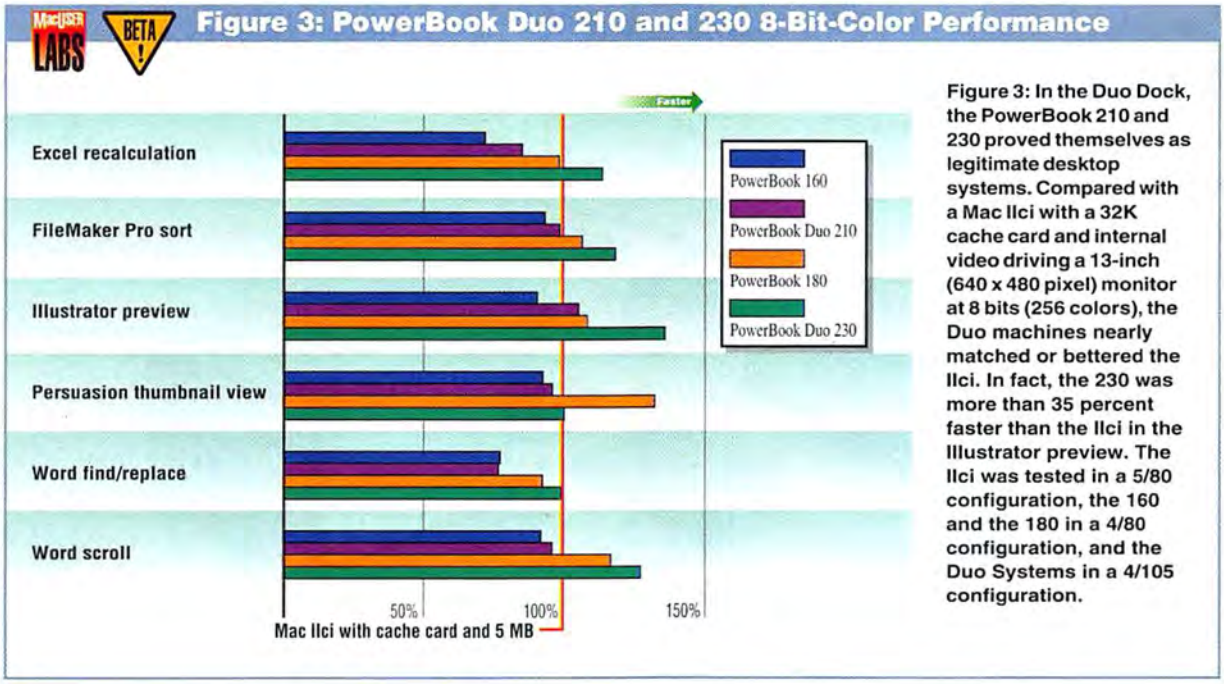


Figure 3: In the Duo Dock, the PowerBook 210 and 230 proved themselves as legitimate desktop systems. Compared with a Mac IIci with a 32K cache card and internal video driving a 13-inch (640 x 480 pixel) monitor at 8 bits (256 colors), the Duo machines nearly matched or bettered the IIci. In fact, the 230 was more than 35 percent faster than the IIci in the Illustrator preview. The IIci was tested in a 5/80 configuration, the 160 and the 180 in a 4/80 configuration, and the Duo Systems in a 4/105 configuration.

Look Ma, No Ports!

When you look at a 210 or 230 from the rear, the first thing that strikes you is that there isn't much there. Two feet pivot to reveal a printer port; a space for an internal modem; a reset button; a port for the AC adapter; and a retractable door that covers a 152-pin PDS (processor-direct slot) for connecting various accessories, including the Duo Dock.

That's it. No SCSI, no floppy, no video. If you want all the normal Mac I/O ports, you'll have to buy an optional bar called the Duo MiniDock.

The MiniDock offers all the ports you normally expect — an RJ-11 port for an internal modem, audio-in and -out ports, an HDI-30 SCSI port, two serial ports (one for an external modem and one for LocalTalk), a DB-15 video-out port, an ADB port, an HDI-20 floppy port, and an AC-adapter port — and an on/off switch. In addition, for the security-conscious, there is a Kensington MicroSaver Cable security slot.

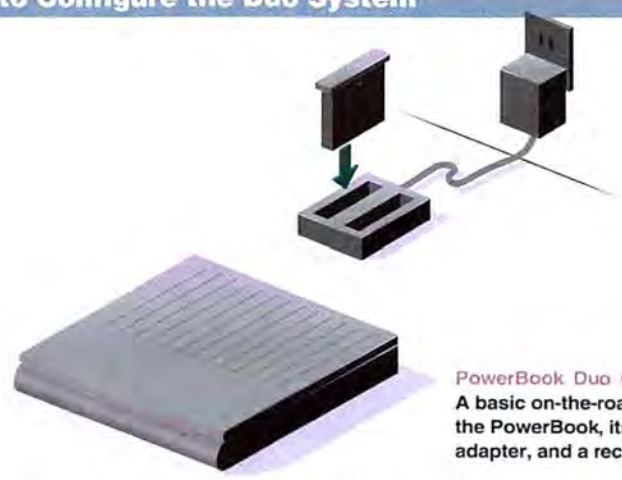
Now remember, there is no floppy port on either the 210 or the 230, but you don't have to buy the MiniDock to connect the external floppy-disk drive. Apple offers the PowerBook Duo Floppy Adapter. This crescent-shaped clip-on bar includes not only an HDI-20 floppy port but also an ADB port and a security slot. Sound like Batman's utility belt yet?

Standout Stand-Alones

As stand-alone notebooks, the PowerBook Duo 210 and 230 are not only the lightest, smallest portable computers Apple has ever built but they're also the fastest. In monochrome, the Duo 210 matched or exceeded the PowerBook 170's performance (see Figure 1). In fact, the 210 was 40 percent faster than the 170 in the Word-

Figure 4: Four Ways to Configure the Duo System

Figure 4: Because the Macintosh Duo System is both a portable and a desktop computer, you can configure it in several ways, depending on the options you add to your PowerBook Duo 210 or 230. We've illustrated four typical configurations.



PowerBook Duo Only:
A basic on-the-road configuration with the PowerBook, its battery, an AC adapter, and a recharger.



Complete PowerBook Duo:
For a complete mobile presentation workstation, you need to add the Duo MiniDock, which includes standard I/O ports plus video-out, and an external monitor.

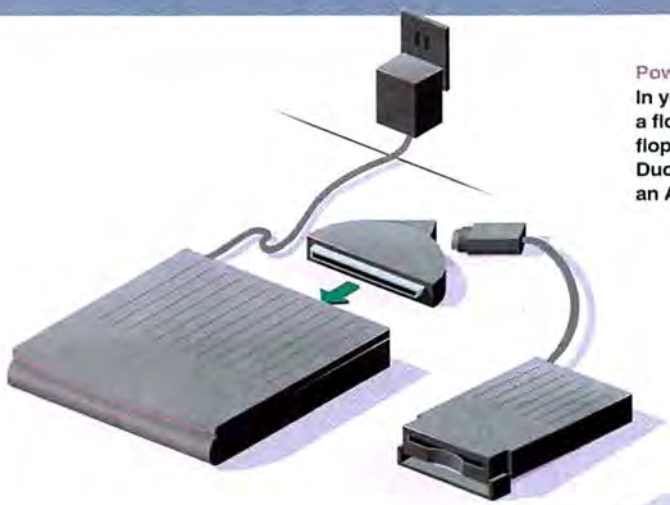
scroll test. The 230 in monochrome was even faster than the 210, beating the 170 by anywhere from 20 percent to 75 percent in our tests. The 210 and 230 performed about as well in our tests as the just-released PowerBook 160 and 180. The 210's performance was within 10 percent of the model 160's, making it essentially an equal; the 230 and the 180 had about the same performance relationship. The only differences came in the Persuasion-thumbnail-view and Word-scroll tests, where the machines took turns beating each other by 20 to 25 percent.

In gray scale, the 210 and 230 again fared well (see Figure 2). The 210 was slightly slower than a PowerBook 170 (a monochrome machine) in the Excel-recalculation and Word-scroll tests, but the differences were negligible. Like the PowerBook 180, the Duo 230 either equaled or beat the 170's performance in all but the Word-scroll test, further proving that adding gray-scale displays doesn't necessarily have to result in performance degradation.

The Duo Dock

Faster, lighter, smaller notebooks are always of interest, but the PowerBook Duos are more than that. The Duos are hybrid machines that aren't really intended primarily as stand-alones. And it's when they're teamed with their companion docking station, the Duo Dock, that they really show their stuff.

The Duo Dock is the base into which you insert a PowerBook Duo 210 or 230 to create a fully functional desktop machine. But before we get started, let's get one thing clear: This thing looks weird. We're not talking technology or functionality, mind you, just aesthetics. From its two-tone finish (platinum on top, granite on



PowerBook Duo with Floppy-Disk Drive:
In your hotel room, you might want to use a floppy-disk drive. To attach the external floppy-disk drive, you need a PowerBook Duo Floppy Adapter, which also provides an ADB port.



Macintosh Duo Dock System:
Back at your desk, you need the full Duo Dock — which provides all the standard Mac I/O ports plus additional VRAM for as much as 16-bit color (optional), an optional FPU, and two NuBus slots — and a monitor. The monitor can be as large as 16 inches. In this configuration, you can use as many as three monitors by adding two display cards.

Figure 5: Inside the Macintosh Duo Dock

Figure 5: The Macintosh Duo Dock is the desktop base that lets you turn your PowerBook Duo notebook computer into a desktop machine that rivals a Mac IIci.

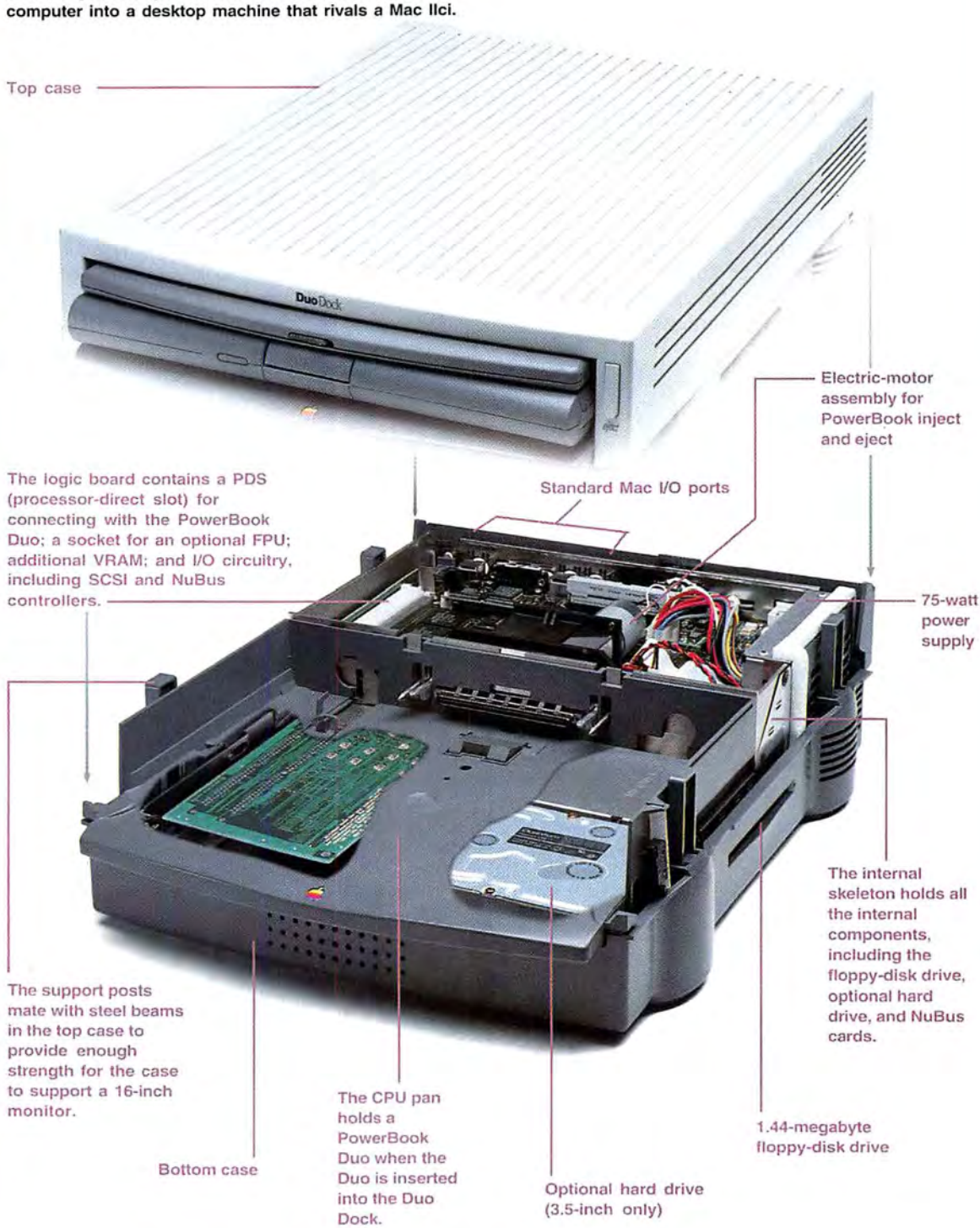


Figure 6: PowerBook Duo 210 and 230

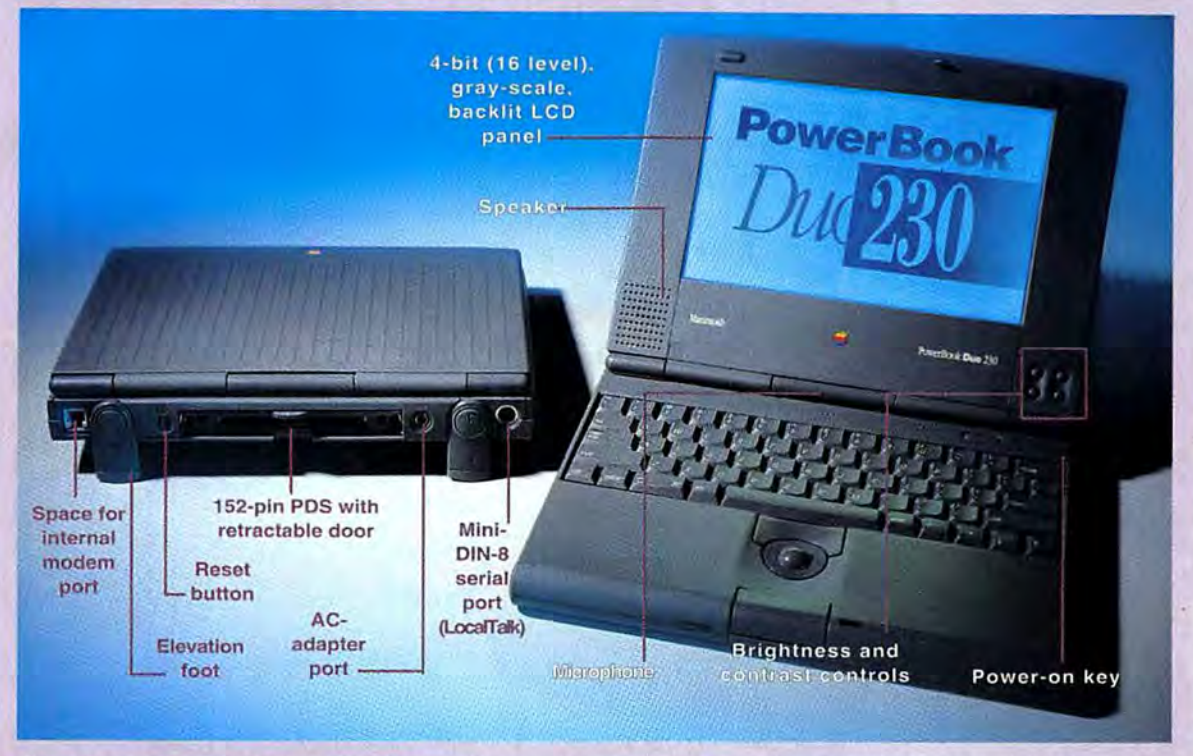


Figure 6: The PowerBook Duo 210 and 230 are the smallest, lightest, fastest PowerBooks Apple has ever built, each weighing just 4.2 pounds and measuring only 1.5 inches thick.

the bottom — according to Apple, the top will match your monitor, and the bottom, your PowerBook), to its partially melted-looking lid, to its strange cylindrical feet sticking out the sides, this is easily the most visually "unusual" computer Apple has produced since the Lisa. But underneath its ugly-duckling exterior, there is a swan.

The Duo Dock offers all the Macintosh I/O ports found on the MiniDock or on the back of any standard desktop machine. It also has a floppy-disk drive; an optional hard-drive bay for a 3.5-inch, half-height hard-disk drive; two full-sized NuBus slots; an open socket for an FPU; and an option for additional VRAM for as much as 16-bit (32,000 color) video on monitors as large as 16 inches. For additional security, the Duo Dock offers keyed access for locking a PowerBook either in or out.

Because the Duo Dock can support monitors as large as 16 inches, it's also designed to support them physically (see Figure 5). On the underside of the lid is a pair of steel beams that attach to four posts sticking up from the base to form a solid frame when the lid is in place. The frame transfers the monitor's weight to the Duo Dock's feet so the case won't crack. The Duo 210 and 230 have been strengthened too. A magnesium frame surrounds their motherboard to stiffen the case and act as a heat sink.

PowerLatch: The Duo's Secret

Using the Duo Dock is a lot like using a VCR but much easier than programming one, thanks to Apple's new PowerLatch technology. To configure a PowerBook Duo 210 or 230 as a desktop unit, all you have to do is insert it into the slot on the front of the Duo Dock and push the Inject/Eject button. Like a VCR sucking in a videotape, the Duo Dock draws the PowerBook in with an electric motor. This method ensures that the PowerBook is properly positioned every time and allows for several intelligent functions. For example, if you choose to eject the PowerBook while you have an application open, the Duo Dock system interprets the Eject command as a shutdown and asks if you want to save your work before quitting. It's also smart about networks. If you eject the PowerBook while you're connected to one or more servers, the next time you insert the PowerBook into that dock, the system will automatically log you back on to the same servers (to find out how PowerLatch works, see the "How It Works:

Figure 7: Duo MiniDock and Floppy Adapter

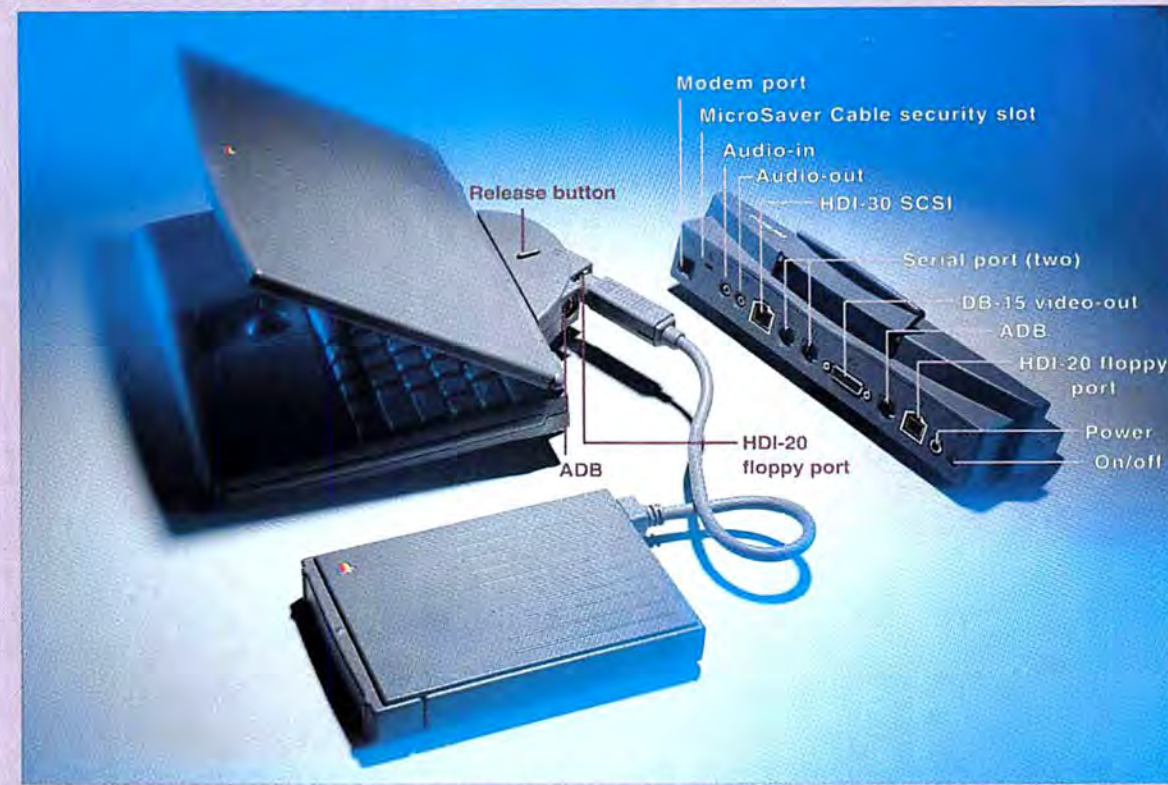


Figure 7: The Duo Floppy Adapter lets you connect the external floppy-disk drive to a PowerBook Duo 210 or 230. Apple's MiniDock (right) provides all the standard Mac I/O ports you need.

PowerLatch Technology" sidebar). The Duo Dock system can similarly reconfigure itself for multiple-monitor setups with just the insertion of the PowerBook. It even prevents you from accidentally messing yourself up: The Duo Dock won't let you insert a sleeping PowerBook, because the Duo Dock has no way of understanding the various states a sleeping computer might have been in when it went to sleep.

Because of its unique physical requirements, the Duo Dock isn't exactly as easy to live with as a desktop machine. For example, the NuBus slots aren't vertical; they're horizontal. Inserting a NuBus card requires partial disassembly of the Duo Dock, which makes swapping NuBus cards anything but trivial. In fact, although you access the cards from the rear of the Duo Dock to install them, you have to take the Dock apart and turn the internal skeleton around to do so. Likewise, because the CPU and memory are in the PowerBook, adding system memory means taking your PowerBook apart.

A Standard on the Desktop

Because all the intelligence in the Duo System resides in the PowerBooks themselves, the first question we asked ourselves was how well they compared with a desktop machine. Quite well, it turns out. In monochrome, the 210 was within 25 percent of a 5-megabyte Mac IIci with a 32K cache card and the 230 was within 10 percent. Our color-test results were similarly encouraging (see Figure 3). With the standard 512K VRAM in a Duo Dock equipped with an optional FPU to drive a Macintosh Color Display at 8 bits (256 colors, 640 x 480 pixels), the 210 delivered basically the same performance as our IIci, whose internal video circuitry drove a monitor of the same size and pixel depth. When we put a 230 into the Duo Dock, its overall performance jumped past the IIci's — by more than 35 percent in the Illustrator test.

In testing the Duo Dock, we did come across an interesting performance-enhancing fact: If you add the VRAM upgrade to go from 512K to 1 megabyte (enough for 16-bit color on displays as large as 16 inches), 8-bit performance improves. Apple explained that a 20-percent improvement could be expected, because the additional VRAM gives you a full 32-bit data path to video. However, in our limited testing of this configuration, we actually saw an improvement of more than 35 percent. The additional VRAM is probably a good investment whether you need 32,000 colors or not.







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Call **800-562-0311** today, and we'll tell you where to catch a demonstration of the new UC840. (Feel free to bring along your dinner date.)

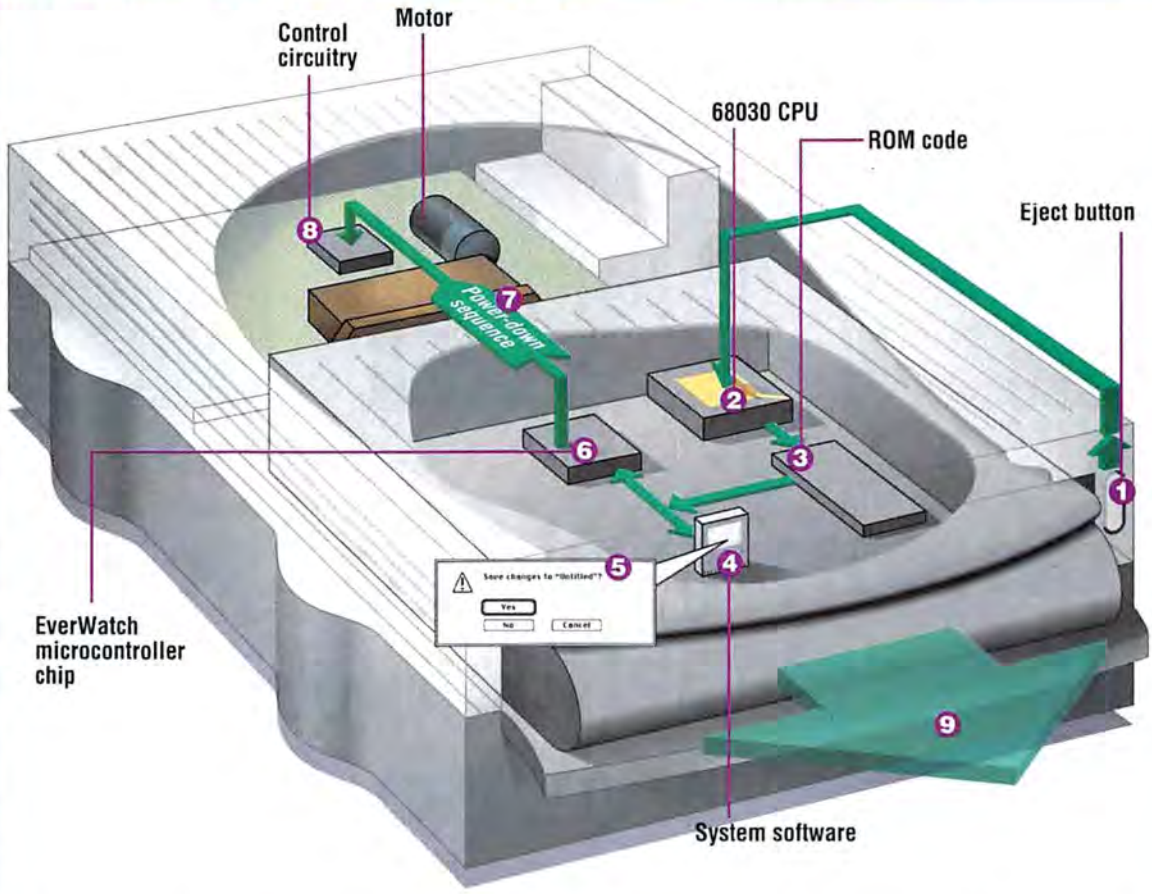
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How It Works: PowerLatch Technology



Apple's PowerLatch technology integrates hardware and system software to make it possible to move between portable and desktop computing transparently. PowerLatch shields you from accidental data loss and from complicated reconfiguration procedures when you insert or eject a PowerBook Duo 210 or 230. When you eject a PowerBook Duo while you have a document open, PowerLatch makes sure everything is shut down without data loss.

Pressing the Eject button (1) sends a hardware interrupt to the 68030 CPU (2) in the PowerBook Duo.

The ROM code (3) passes a shutdown request to the system software (4).

The system software issues a Save Changes dialog box (5).

The EverWatch microcontroller chip (6) inside the PowerBook Duo sends a message to the Duo Dock to begin the power-down sequence (7).

When the voltages to the Duo Dock's internal circuitry (8) have been cut, the PowerBook Duo is ejected (9).

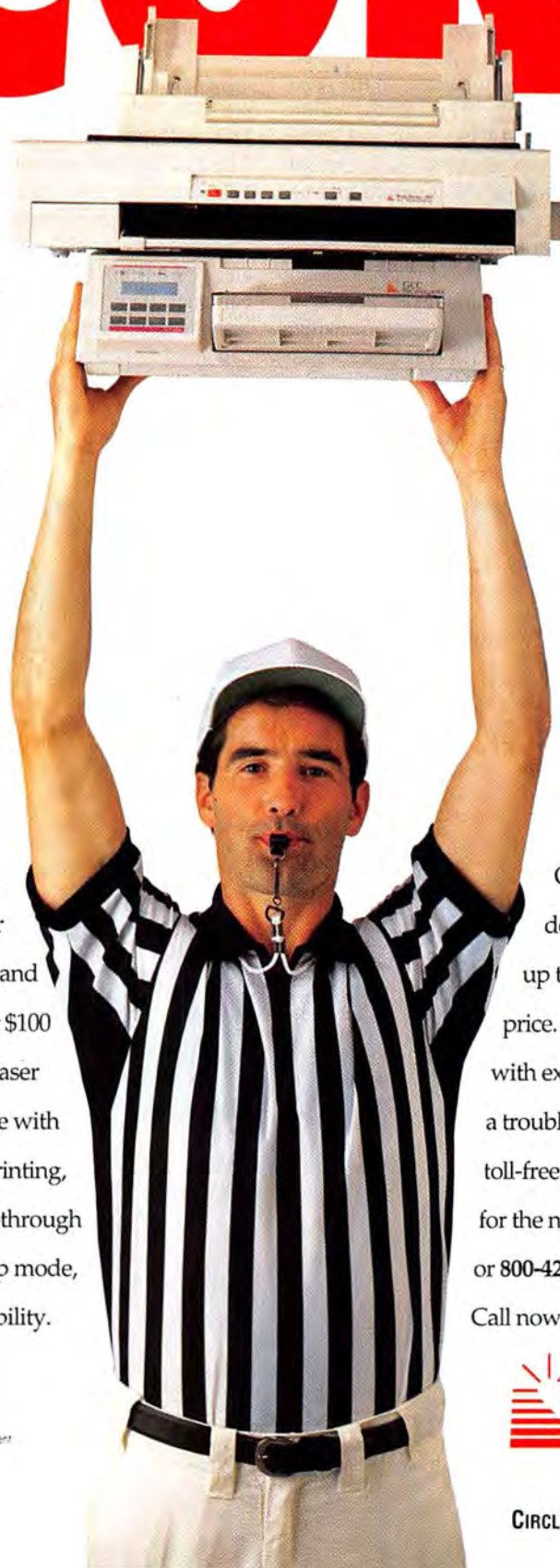
Converting Your Work

Unlike most convertibles, the Duo Dock doesn't require you to pay a premium in exchange for its versatility. In fact, similarly configured Mac IIci and Mac IIvx systems cost only slightly less than a fully configured Duo Dock system. Because the PowerBook Duo 210 and 230 can perform as well as their cousins the PowerBook 160 and 180 can and because the Duo Dock system performs as well as a Mac IIci, for the price of a desktop machine, you can get the equivalent of two computers: one for the office and one for the road.

But before you charge off in a state of Candide-like ecstasy shouting, "The best of *two* possible worlds!" there are a few things you should consider.

Given its unique capabilities, The Duo Dock system does demand some specific work habits. First of all, we recommend buying the largest hard drive you can fit into your PowerBook Duo 210 or 230, whether it's from Apple or not. That drive is going to be your primary drive when you're in the office or on the road, and you'll find that 80 megabytes fills up really fast — especially given the size of applications these days. One strategy is to fill the hard-drive bay in the Duo Dock with a hard drive and then use the internal hard drive in the

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PowerBook only for your boot system and the two or three applications you use every day, keeping everything else on the other drive. The problem is that you have to remember where you've saved everything and make sure that on the rare occasion you use an unusual application to create a document, you copy that application to the PowerBook drive so you have it on the road.

Now, you're probably thinking, "Hey, that's wrong. That's what AppleTalk Remote Access is for. All I have to do is dial in to that desktop machine, and I've got everything I need." Well, ordinarily that would be true, but not this time. Once you've removed the PowerBook from the Duo Dock, you can't boot the Duo Dock's drives, so when you dial in, there's no way to mount those volumes remotely. You can, however, access all of your servers, so this might be one instance in which backing up to a server makes sense (but don't necessarily expect your network administrator to agree).

Because the PowerBook Duo 210 and 230 have fewer internal options than do their PowerBook 160 and 180 cousins, you need to be more attentive to what you pack before you leave the office. At a minimum, you'll probably want a 210 or a 230 in addition to an external floppy-disk drive and a Duo MiniDock (or a third-party equivalent; see the "Third-Party Products for the Duo System" sidebar). If you add up the weight of those three pieces, you'll discover something interesting: They actually weigh slightly more than a PowerBook 160 or 180 (6.95 pounds versus 6.8). Of course, with the Duo 210 and 230, the advantage you have over the 160 and 180 is that you don't have to carry all that weight around all the time. For example, when you're on an airplane, you probably won't be using the floppy-disk drive often and you definitely won't be using the MiniDock, so you can pack them in your luggage and keep just the notebook in your briefcase. As users of the PowerBook 100 can attest, 2 pounds can make a big difference at the end of a full day's running around. In any event, because the Duos have so many external options that are really necessities, you do have to prepare yourself to carry and

Third-Party Products for the Duo System

Several third-party manufacturers are expected to take part in the Mac Duo System experience. Although at press time many manufacturers hadn't yet completed their product plans, we were able to gather information from a few.

Docks

Smaller than Apple's MiniDock and possessing fewer ports, E-Machines' PowerLink Presenter is designed for traveling presenters who need video output. The Presenter supports 8-bit color (256 colors) on monitors as large as 16 inches and 4-bit color (16 colors) on monitors as large as 19 inches. The supported video formats include RGB (Mac and SVGA), NTSC, and PAL. The Presenter also includes a stereo audio-out jack.

E-Machines' PowerLink DeskNet is a desktop dock that provides standard Mac I/O ports, including SCSI, floppy-disk, video-out, audio-in and -out, and ADB plus Ethernet. The dock comes in either 10BASE-T or 10BASE-2 versions. Its color-video options are the same as the Presenter's.

E-Machines, 9305 S.W. Gemini Drive, Beaverton, OR 97005; 503-646-6699. PowerLink Presenter, $499. PowerLink DeskNet, $699.

Dayna Communications is also expected to offer an Ethernet product, but specifications were unavailable at press time.

Batteries

Lind Electronic Design will have three Duo power items. The Auto Power Adapter lets you charge your Duo's battery from the cigarette lighter in your car, the Auxiliary Power Pack is an external power supply that provides four times the usable power that a Duo battery does, and the Auxiliary Power Pack D Cell provides two to three times the life of a Duo battery with eight standard D-cell batteries.

Lind Electronic Design, Inc., 6414 Cambridge Street, Minneapolis, MN 55426; 612-927-6303. Pricing not set at press time.

Memory

Both Technology Works and Microtech International have committed to making memory available for the PowerBook Duo machines, but neither of the companies was able to reveal product specifications and pricing at press time.

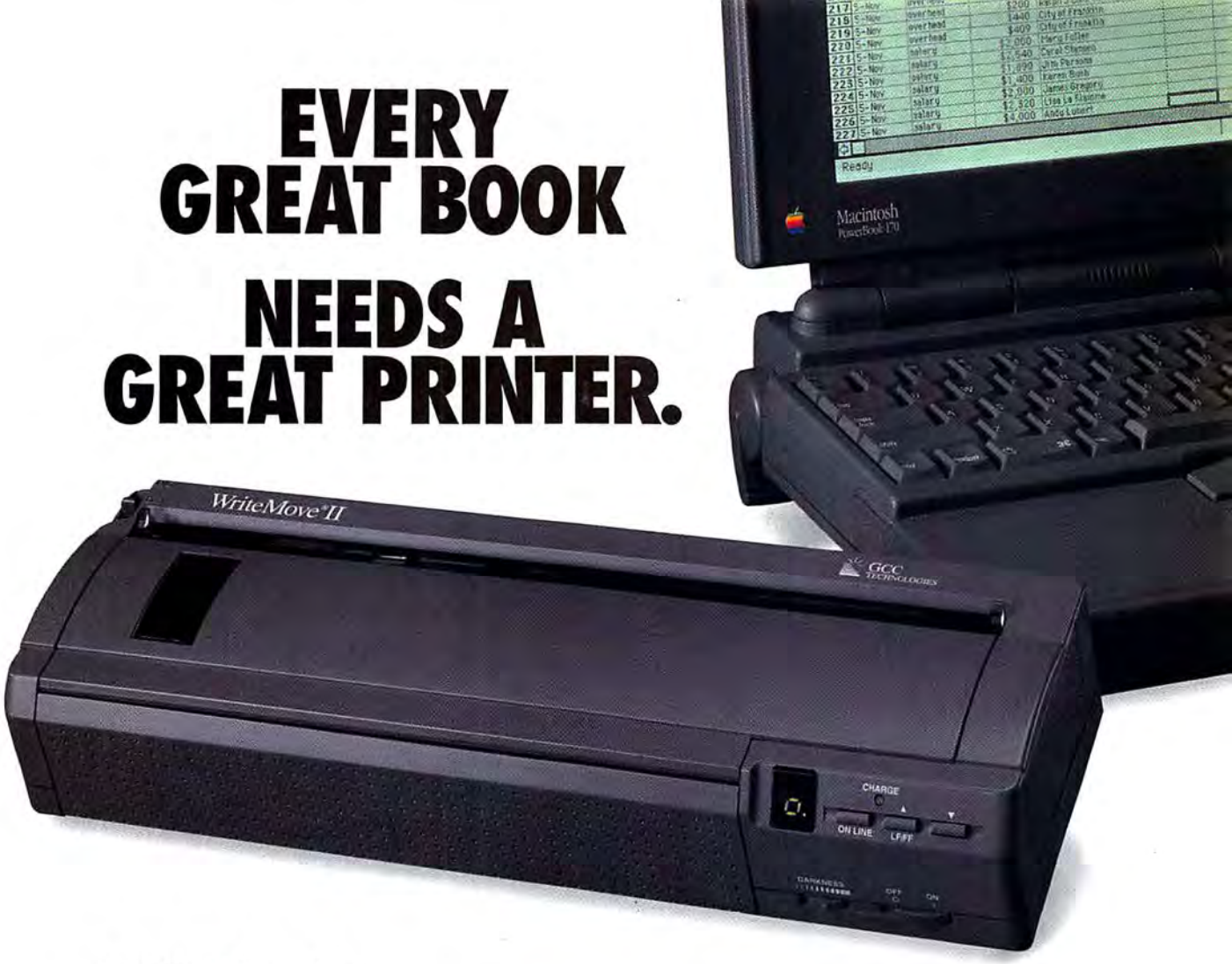


Cases

Kensington Microware will offer a trio of cases. The Compact Case is just enough for a PowerBook with a minimum of accessories; the Deluxe Notebook Traveler offers more space; and the Executive is large enough for a small printer, a cellular phone, a keypad, and more.

Kensington Microware Ltd., 2855 Campus Drive, San Mateo, CA 94403; 800-535-4242 or 415-572-2700. Pricing not set at press time.

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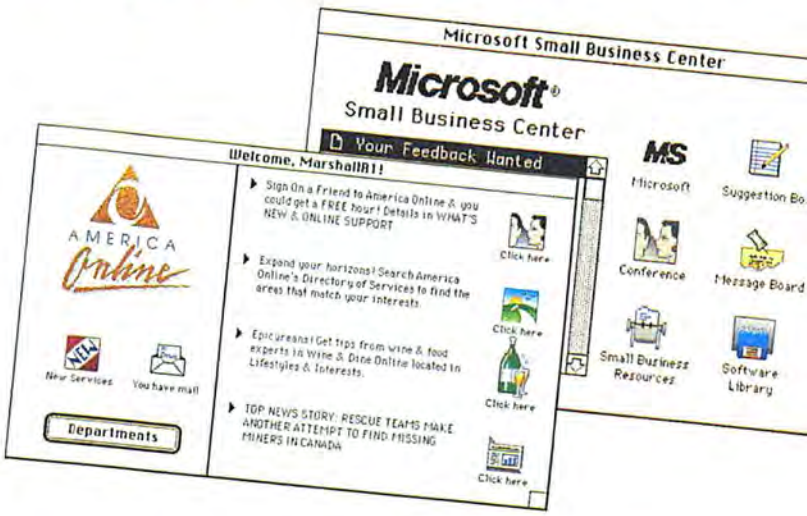
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Which Mac Should I Buy?

MacUser's expert system Which Mac Should I Buy? has been updated to include the Macintosh IIvx, the PowerBook 160 and 180, the Macintosh Duo System (the PowerBook Duo 210 and 230), and the Performa series. Our HyperCard decision stack helps you match your needs to a machine by asking you a few cogent questions about, for example, what software you use and what your budget is. Developed by HyperCard expert Danny Goodman with the help of the MacUser Labs staff, Which Mac Should I Buy? contains complete technical specs for all current Mac CPUs. It is available exclusively through ZiffNet/Mac. You can download the file WCHMAC.SEA from Library 3 (Reference) of the ZiffNet/Mac Download & Support Forum.

keep track of more pieces. Even though the pieces' collective weight is about the same as that of the self-contained PowerBooks (such as the 160 or the 180), there's the inconvenience of carrying around more stuff.

These few limitations, however, are not major problems and certainly don't invalidate the Duo System as an excellent choice. If you're looking for a simple, elegant integrated computer for both desktop and portable computing, the Duo System is as fine an example of well-engineered technology as you can find anywhere. With the Duo System, you don't sacrifice a thing, because you get the same level of computing power on the road as you have in the office. Plus you get the convenience of having only one system to maintain instead of working on a stand-alone desktop and a portable and then having to synchronize and copy files between the two. Because working outside the office has become as natural as working inside it, the Macintosh Duo System is a natural. Who would've thought that a convertible would be anything but a luxury?

Russell Ito is a senior editor who thinks the PowerBook 100 was a good idea.

Table 1: Features of the Macintosh Duo System

	PowerBook Duo 210	PowerBook Duo 230	Duo MiniDock	Duo Dock
List price	$2,249 (4/80)	$2,609 (4/80) $2,969 (4/120)	$589	$1,079
CPU	25-MHz 68030	33-MHz 68030	NA	NA
FPU	none	none	NA	33-MHz 68882 (optional)
RAM	4 MB of pseudostatic RAM on motherboard; expandable to 24 MB	4 MB of pseudostatic RAM on motherboard; expandable to 24 MB	NA	NA
Expansion	none	none	none	NuBus slots (2)
Display type	Film Supertwist Nematic LCD	Film Supertwist Nematic LCD	NA	NA
Display dimensions	640 x 400 pixels	640 x 400 pixels	NA	NA
Video support	4 bits (16 grays)	4 bits (16 grays)	512K VRAM	512K VRAM
External-video support	with MiniDock or Duo Dock only	with MiniDock or Duo Dock only	as much as 8 bits (256 colors) on displays as large as 16 inches	as much as 16 bits (32,000 colors) on displays as large as 16 inches with VRAM upgrade
Dimensions (L x W x H)	10.5 x 8.5 x 1.5 in.	10.5 x 8.5 x 1.5 in.	10.6 x 3.2 x 2.1 in.	16.25 x 12.25 x 4.75 in.
Battery type (life)	nickel hydride (2.5 – 4 hr)	nickel hydride (2.5 – 4 hr)	NA	NA
Backup battery	rechargeable lithium	rechargeable lithium	NA	NA
Weight	4.2 lb	4.2 lb	1.24 lb	13.1 lb
Network support	LocalTalk	LocalTalk	NA	NA
Storage devices	external floppy-disk drive one 2.5-inch hard drive	external floppy-disk drive one 2.5-inch hard drive	NA NA	SuperDrive bay for one 3.5-inch hard drive
Ports	AC-adapter optional internal modem serial (printer/LocalTalk or modem)	AC-adapter optional internal modem serial (printer/LocalTalk or modem)	AC-adapter ADB audio-in and -out DB-15 video-out floppy (HDI-20) modem SCSI (HDI-30) security slot serial (printer/LocalTalk and modem)	AC ADB audio-in and -out DB-15 video-out modem monitor AC pass-through SCSI (HDI-30) security slot serial (printer/LocalTalk and modem)

System 7 Takes on the World

Apple's new system-software releases include a "world ready" System 7, a new QuickTime, and a simplified alternative to the Finder.

By Henry Bortman

It's been a little more than a year and a half since Apple released System 7, and since then we've seen System 7.0.1, followed by System 7.0.1 with Tune-Up 1.0; Tune-Up 1.1; and finally, Tune-Up 1.1.1. As the expanding number of decimal points indicates, users haven't seen any significant new functionality in Mac system software — at least not the software that ships as the actual Mac system — for quite some time.

With System 7, Apple began a new approach to system-software releases. Previous releases, including System 7.0, typically brought together a variety of changes and improvements, but with System 7, Apple announced that it would bring out new system-software capabilities initially as separate products — QuickTime being the first example.

With the advent of System 7.1, Apple is tweaking its system-software strategy even further. Version 7.1 is the foundation for all the new system functions, such as OCE (Open Collaboration Environment), AppleScript, and QuickDraw GX, due in 1993. It's also the first system to implement system enablers, extensions that adapt the basic system to support the special features of new Mac models. In the past, each time Apple released new Macs, it also released a new system-software revision. With system enablers, this isn't necessary, because all you need is the enabler extension. System 7.1 includes enablers for the Mac IIvx, Performa 600, PowerBook 160 and 180, and Duo 210 and 230. It also includes a 32-bit system enabler that lets users of older 68020 and 68030 Macs — the SE/30, II, IIx, and IIcx — install more than 8 megabytes of RAM. (Connectix's MODE32 provides the same function.)

PHOTOGRAPHY: GIAMPIERO BENVENUTI


System 7.1
WorldScript
QuickTime 1.5
Fonts folder
Photo CD
At Ease
Applications
Documents

System 7 Goes Global

The biggest change in System 7 is that it's now "world ready" (see Figure 1). Although System 7.0 was localized for many languages, it was not available in Japanese, Chinese, and Korean — languages written with thousands of different characters instead of the 20 to 30 letters that are common among phonetic languages.

A localized version of System 7.1 displays all system menus, dialog boxes, extensions, and control panels in the local language. In System 7.1, a new menu, Keyboard, lets users switch back and forth between the local-language keyboard and the U.S. English keyboard. The menus and dialog boxes stay in the local language even when the user switches to the English keyboard, but the keyboard switch makes it possible to enter text in a document in English as well as in the local language.

Mapping thousands of characters to a keyboard that contains slightly fewer than 50 character keys is a problem. Even if you count all the Shift, Option, and Shift-Option alternatives, you're still left with fewer than 200 characters, far from enough for a character set such as Kanji. However, Japanese is written in more than one character set: Although Kanji is an ideogram-based language with thousands of characters, Hiragana is a phonetic language with a character set small enough to be easily mapped to a standard keyboard.

KanjiTalk 7, Release 7.1, the Japanese version of System 7, takes advantage of these multiple languages. It implements an "input method" — a special means of entering text — that Apple calls Kotoeri. Kotoeri enables Japanese-language users to input text in the phonetic Hiragana language and have the system automatically translate to the corresponding character(s) in Kanji. Kotoeri is an in-line input method, meaning that a user can type directly into a document in Hiragana, rather than having to type into a special window. Each time the user presses the space bar, the system translates what has been typed in Hiragana into Kanji. In systems such as KanjiTalk 7, a second menu — the Input Method menu, which displays a pencil icon in the Mac's menu bar — provides the user with a means of customizing the behavior of the input method. For example, a user can use one of the items on this menu to choose whether or not to invoke a special dictionary of technical and scientific Kanji characters. The Chinese and Korean versions of 7.1 have similar input methods.

Two new control panels — Numbers and Date & Time (see Figure 2) — comprise a related addition to System 7. Foreign countries use a variety of formats for displaying numbers, including currencies, dates, and times. Installing a localized system automatically sets these formats appropriately, but using the Keyboard menu to switch between a localized system and U.S. English does not reset them to the U.S. standard.

Vendors who have built local-language support in to their applications — and who have followed Apple's

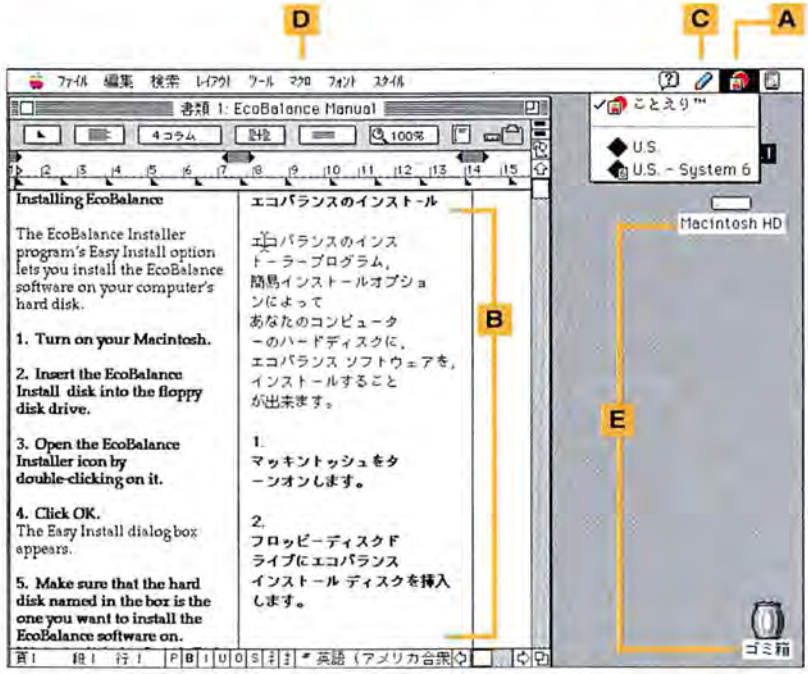


Figure 1: System 7.1's WorldScript allows Mac users all over the world to use System 7 in their local language. Shown here is WordPerfect for the Macintosh 2.1.1, running under KanjiTalk 7, Release 7.1.

A. The Keyboard menu lets users switch between a local language and U.S. English on the fly for keyboard input.
B. On localized systems, documents can contain both English and local text. Here the same text appears in English and in Kanji.
C. The Input Method menu (not shown) lets users select various options that affect the way characters are translated between, in the case of KanjiTalk 7, the phonetic Hiragana and the ideogram-based Kanji.
D. Applications that have support for multiple languages built in can run unmodified under KanjiTalk 7 and other localized-language systems. Text in these applications' menus and dialog boxes automatically appears in the same language as that of the active system.
E. Text identifying items that are part of the Finder, including menus and the Trash, appear in the language of the localized system. However, users can use either English or the local language to name hard drives, files, and folders.

programming guidelines — will find that their applications work without modification with the new localized systems. For example, the currently shipping version of WordPerfect for the Macintosh (version 2.1.1), shown in Figure 1, works with KanjiTalk 7 right out of the box.

And for those who are wondering whether they can install more than one local language system at the same time, the answer is, Sorry, not yet. System 7.1 provides the foundation for multiple-language systems, and Apple is developing language modules that will make it possible to install multiple languages on one Mac; but for now, you are restricted to running a single local-language system and U.S. English (which ships as part of every local system) simultaneously.

Fonts: A Folder of Their Own

If you read the August 20, 1991, Apple and Adobe press release carefully, you'd have discovered that the two companies promised you and me ". . . the inclusion of Adobe Type 1 Font Technology within a future version of System 7." The key phrase here is a *future version*. Now you might have assumed that the future version they were referring to was the *next* major version of the Mac operating system — say, just for the sake of argument, 7.1. Wrong. Type 1 font rasterization is no more integrated into 7.1 than it was into 7.0, where some of us think it belonged in the first place.

Although Apple hasn't made Type 1 fonts equal citizens of the Macintosh OS quite yet, it has taken a step in the right direction. System 7.0.x introduced the concept of an intelligent System Folder. Certain types of files — extensions, control panels, and fonts, for example — dragged onto the System Folder icon are automatically installed in special locations. In the case of fonts, however, the scheme is a little bizarre: Bit-mapped and TrueType fonts get installed into the System file itself, whereas PostScript Type 1 fonts get treated as extensions and are installed in the Extensions folder.

With 7.1, things have changed a little bit. The system now contains a special folder, Fonts (see Figure 3). When you drag any type of font file — bit-mapped, TrueType, or Type 1 — onto the System Folder icon, the file automatically gets placed in the Fonts folder. This simplification of font-file management on the Mac is a welcome step forward, even if it is a smaller step than many users would like to have seen Apple take. For the record, Apple now plans to fully incorporate Type 1 rasterization as part of the Mac's operating system when it releases QuickDraw GX, a complete rework of the Mac's graphics-and-text engine, "some time in 1993." Details weren't available at press time.

By the way, for those who still don't have ATM (Adobe Type Manager, software that enables the Mac to display PostScript Type 1 fonts on-screen), System 7.1 includes the same great offer as 7.0.x did. A Read Me file refers you to Adobe so that you can purchase ATM, along with several fonts from the Adobe Garamond family, for $7.50.

Picking Up the Pace: QuickTime 1.5

To date, QuickTime hasn't shipped as part of the Mac operating system. Although many vendors include it with their hardware (video-capture boards, for example)

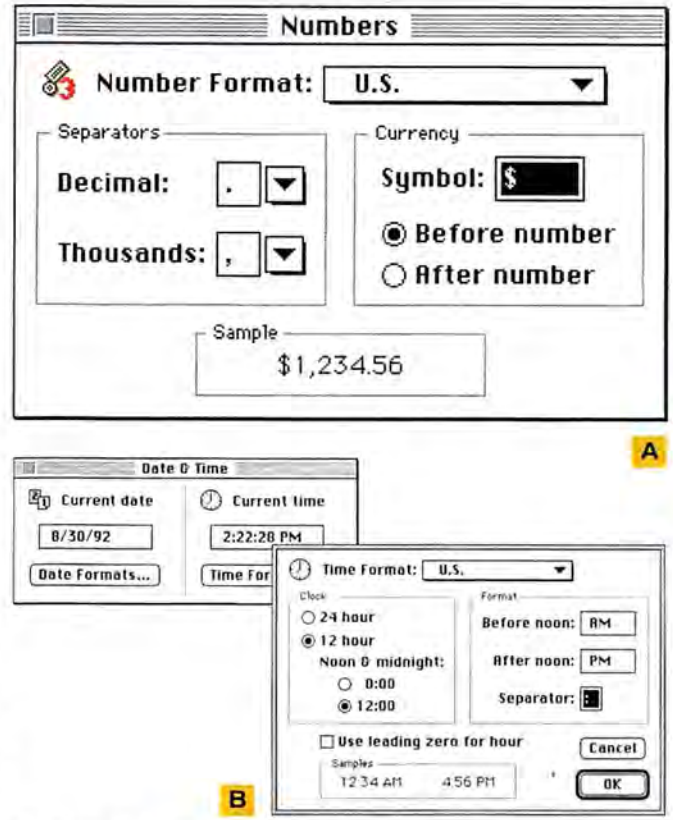


Figure 2: Two new control panels, Numbers (A) and Date & Time (B), have been added to the system software in 7.1 to accommodate non-U.S. versions. When users install a non-U.S. system, the correct local formats are set automatically.

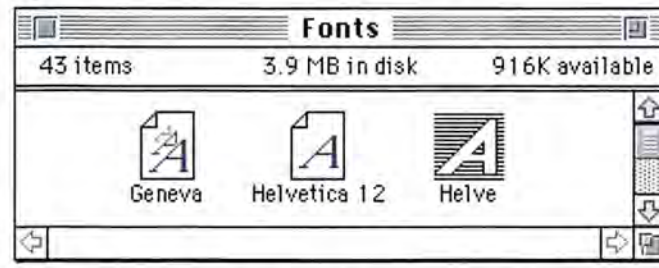


Figure 3: System 7.1 adds a new intelligent Fonts folder to the System Folder and changes the way fonts are installed in System 7. Now you can drag bit-mapped, PostScript Type 1, and TrueType fonts onto the System Folder icon; they will all be installed in the Fonts folder within the System Folder.

and software (video-editing and presentation programs), Apple has made it directly available only through its QuickTime Starter Kit ($169). A new version of QuickTime is bundled with System 7.1. QuickTime 1.5 boasts two major new features: a new video compressor and support for Kodak's Photo CD format.

The new compressor, the Apple Compact Video compressor, has two main features. First the good news: It can squeeze video-image files down to about half the size of those produced by its predecessor, the Apple Video compressor (which shipped with QuickTime 1.0 and remains a part of QuickTime 1.5). Now the bad news: It's really slow.

If your Mac has a special hardware add-on card — several are now appearing on the market — and a few gigabytes of disk space, it can process the data required to display full-screen (640 x 480 pixels), full-motion (30 fps) video. But to display video on the Mac screen with nothing but the Mac's CPU crunching the data, compromises have to be made, so the typical QuickTime movie you see on a Mac is 160 x 120 pixels and runs at 15 fps.

In addition to reducing the size of video-image files to half the size of those of the original compressor, the new compressor is more efficient at playing back the compressed data. For example, using a Quadra 700, if you take a 160-x-120-pixel clip captured raw at 15 fps and compress it with the Apple Video compressor, you'll be able to create a file that can be played back at 15 fps. But if you try to compress a 320-x-240-pixel clip, also captured raw at 15 fps, using the Apple Video compressor, your playback rate will be an unacceptably jumpy 5 or 6 fps. With the new Apple Compact Video compressor, that same 320-x-240-pixel clip can be compressed into a file that can be played back at nearly the original rate of 15 fps (see Figure 4).

There's just one drawback: The Compact Video compressor takes more than a hundred times as long to compress a clip as does the Video compressor. In testing at MacUser Labs, with late-alpha QuickTime 1.5 software, it took only two and a half minutes to compress a 17-second 320-x-240-pixel clip originally captured at 15 fps. To compress the same clip with the Compact Video compressor took nearly three and a half *hours*. Apple expects to improve on this time significantly before it ships the new compressor — perhaps cutting compression time in half. But that's still a long time to keep your Mac busy for 17 seconds' worth of video.

Users aren't likely to make much use of the Compact Video compressor to create QuickTime clips of birthday parties, but for users who just play back clips, it's a solid win — they get larger images with a faster frame rate. The typical user of the Compact Video compressor will be a vendor of video CD-ROMs who will have a Quadra farm — or a Silicon Graphics Indigo, which will support QuickTime soon — churning out clips.

The Paperless Photograph

The next time you bring your film into the neighborhood one-hour photo-finishing store, ask if it can produce a Photo CD. Photo CD is Kodak's new digital-



A



B

Figure 4: The original Apple Video compressor is capable (on a Quadra 700) of compressing 160-x-120-pixel images for playback at nearly 30 fps (A). However, it can compress 320-x-240-pixel images for playback at only 5 fps. The new Apple Compact Video compressor can compress 320-x-240-pixel images for playback at 15 fps (B), but it takes it more than a hundred times as long as the Video compressor to compress a video-clip file.

image format for storing pictures on CD-ROMs. You leave the film at the store, and when you come back later, you get negatives, prints, and a CD with each of your images stored at several resolutions. Take the disc home; pop it into your CD-ROM drive; and if you have QuickTime 1.5 installed, you'll be able to see and work with the images just as if you had scanned them — except that you don't have to scan them: They'll already be digitized. (Warning: Older CD-ROM drives might not support the Photo CD format.)

You can store around 100 images on a disc. If you don't fill it up the first time around (in the first "session"), you can take it back a second, third, or fourth time — as many visits as it takes to fill the disc.

Warning #2: Only the newest CD-ROM drives support the multisession Photo CD format. To read the images from any but the first session, you need a multisession CD-ROM drive, such as the AppleCD 300i, included in the Macintosh IIvx and the Performa 600 CD.

One particularly nice feature of the way QuickTime 1.5 implements support for Photo CD is in the index it creates, called a slide show (see Figure 5). When you first put your Photo CD into your CD-ROM drive, QuickTime creates a QuickTime movie in which each frame is a thumbnail version of one of the images on your Photo CD. This movie is actually a file on your startup hard disk (you can't write to the Photo CD), but it appears as if it were a file on the Photo CD itself. Double-clicking on an individual image in the movie automatically opens the corresponding Photo CD file as a PICT file (probably in TeachText, however).

QuickTime 1.5 has two other new features of note. First, it provides full support for hardware compression via cards that enable you to display full-screen, full-motion video. Previously, to use such cards with third-party software, software vendors had to explicitly build support in to their applications. Second, 1-bit dithering of QuickTime movies is implemented, enabling users of monochrome Macs, such as the Classic II and the monochrome PowerBook lines, to view QuickTime movies. System 7.1 includes a QuickTime 1.5 disk, which contains the QuickTime extension, a QuickTime-compatible Scrapbook file, and the Photo CD software. But you have to install them manually.

For those who want more QuickTime than that, the QuickTime Starter Kit ($169) will be upgraded to include the QuickTime 1.5 extension as soon as the latter becomes available.

Losing the Finder

Also new in Apple's catalog of system-software offerings is At Ease ($59), a simplified desktop alternative to the Finder (see Figure 6). Why replace the Finder? Permit me to share a little anecdote. Recently a friend of mine called me in a panic. Her son Jack, just a month shy of five years old, had attacked — I can't think of a better word — her computer, moving files and folders to new locations at random. Her SE's desktop was a carpet

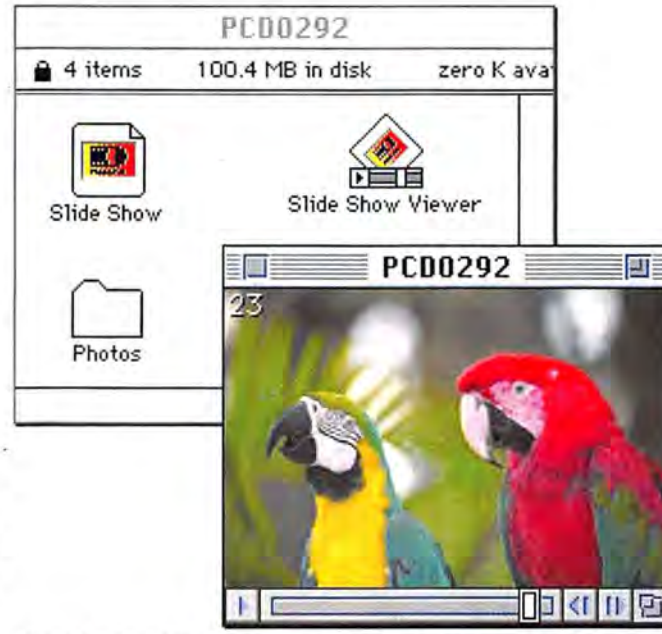


Figure 5: QuickTime 1.5 provides the software necessary for accessing images stored on Kodak Photo CDs. When you insert a Photo CD into a compatible CD-ROM drive, QuickTime 1.5 automatically generates a slide-show catalog of its contents.



Figure 6: At Ease, Apple's new alternative to the Finder, presents a simplified Mac desktop to users. It removes all disk-drive icons and even the Trash from the Mac's desktop, thereby restricting users to accessing only those applications that have been installed in At Ease's Applications panel.

Take a short

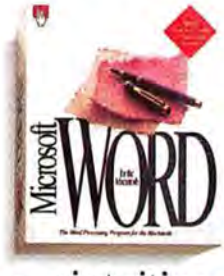


Shortcut to tools. Now it takes the least amount of work to use the functions you need most.

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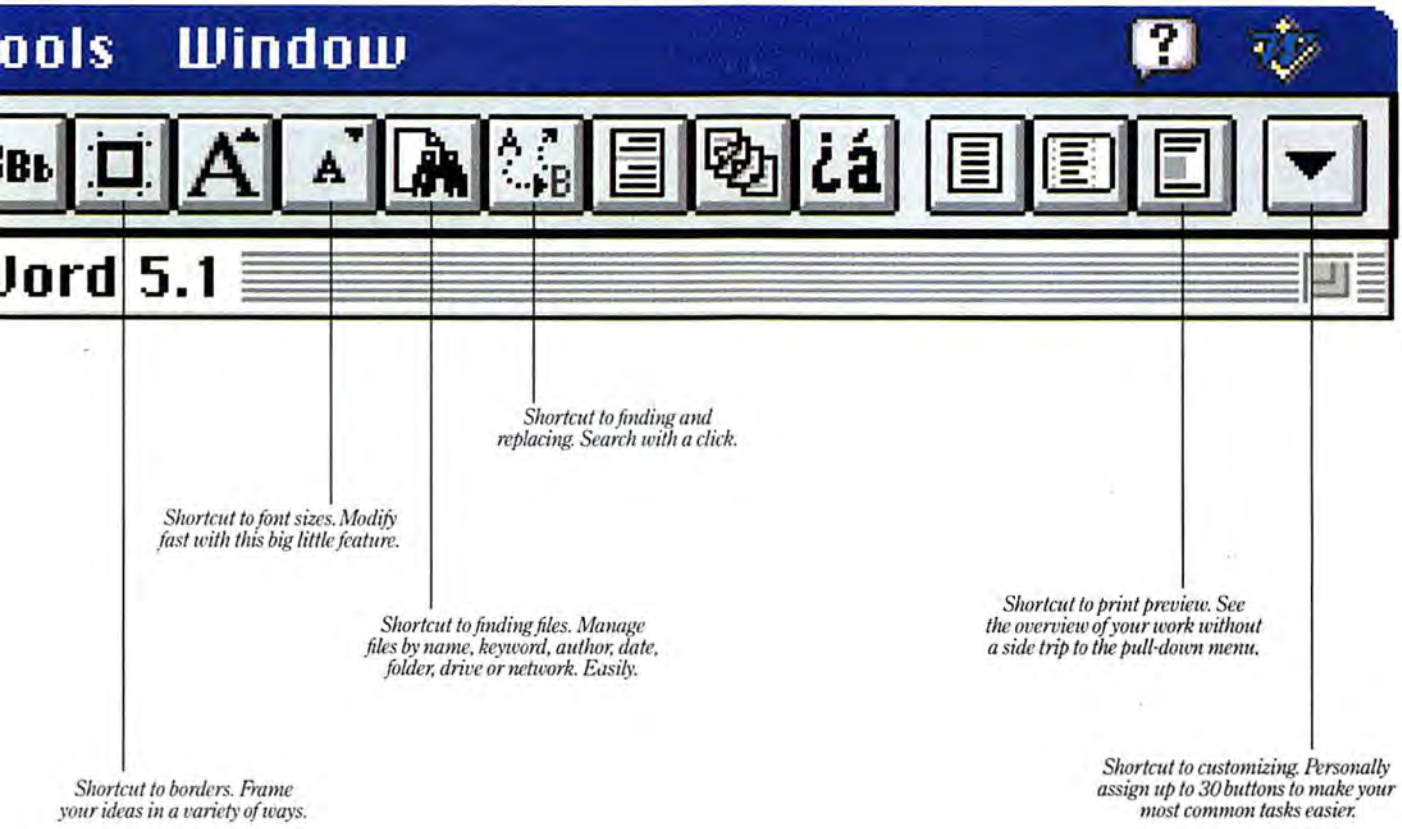
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cut to work.



Now it's possible for you to easily create charts and tables or insert and edit your own text annotations. Your ideas look great in no time.

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of icons. The contents of the System Folder were strewn to the four winds. It took several hours to restore the machine to a semblance of working order. (It didn't help that many files were now named things such as "xxxxbbbjjjjbbxxxj.")

At Ease is designed to prevent such misadventures. It both simplifies the desktop and restricts access to files and applications you may not want small eyes to peer at. Remember MiniFinder (the Apple desktop utility, not the quarterly product listings in *MacUser*)? At Ease is kind of like that. You install only those applications you want its users to be able to access. Each application gets a button on the Applications panel, and a single click on the button launches the program.

System 7.1 at a Glance

New Features

WorldScript. Enables System 7 to run in languages other than U.S. English, including those with complex character sets, such as Kanji, and those that read from right to left, such as Arabic. Enables the creation of mixed English/foreign-language documents.

Fonts Folder. Simplifies the installation of PostScript Type 1 fonts by creating a Fonts folder in the System Folder into which fonts of all types are automatically installed.

QuickTime 1.5. Bundles QuickTime with System 7 for the first time and provides an updated version of QuickTime that offers a more powerful video compressor and support for Kodak's Photo CD technology.

System Enablers. Implements a new approach to upgrading System 7 for specific new Mac models that requires only the addition of a machine-specific extension to 7.1 rather than the installation of a whole new system version.

Unbundled

DAL Client Extension. Software that enables Macs to act as DAL (Data Access Language) clients, simplifying connection to mainframe- and minicomputer-based databases from within spreadsheet, charting, and data-analysis applications. DAL was included as part of System 7.0.x. but has been unbundled from the system software in version 7.1 and will be sold as a separate product.

MODE32. Software from Connectix that enables older Macs, such as the II and the IIx, to break their original system-RAM restriction of 8 megabytes. It was available free to those who bought System 7.0.x. In System 7.1, Apple provides the same thing in the form of a system enabler but with code developed by Apple engineers.

Still Not in the Box

ATM Integration. The ability to display Type 1 PostScript fonts on the Mac screen will not be integrated into the Mac's operating system until QuickDraw GX, a comprehensive new set of graphics and typography routines for the Mac, which should ship some time in 1993.

Level 2 PostScript Printer Driver. For two years, Adobe and, more recently, Apple have promised the world a Level 2 printer driver for the Mac that will speed PostScript printing and enable users to take advantage of the advanced features of PostScript Level 2 printers. But don't look for it in System 7.1. When *will* it ship? At press time, neither Apple nor Adobe would commit to a date.

The Trash can is gone, so no one can accidentally delete critical files. Floppy- and hard-disk icons are gone too, so no one can randomize the contents of your disks. The menus are greatly simplified, and the Control Panels item is removed from the Apple menu.

If you need to get to the Finder, you can do so from the File menu. You have the option of restricting this ability with a password. So how do you manage the documents you create while running At Ease? There are two ways: You can check an option in the At Ease Setup control panel to create a button on the At Ease Documents panel for each new document, or you can require that all new documents be saved to a floppy disk.

At Ease is a great utility. Educators and parents will find it tremendously useful. I've got it running on my machine at home. But it does have some shortcomings, which we hope will be addressed in the next version. For one thing, it lets you create only a single user-setup environment. For home use, this is adequate, but for machines that will be shared by several users in a classroom setting, each perhaps needing to use a different set of applications, it would be more useful if it allowed multiple user profiles.

A second shortcoming is that although it removes the Control Panels item from the Apple menu, it doesn't let you customize the menu. If your Apple menu contains a utility such as DiskTop, which duplicates many of the Finder's functions, the restricted-access feature of At Ease can easily be circumvented. It doesn't seem that it would be too difficult to add the ability to customize the Apple menu.

Finally, there is an unfortunate interaction between At Ease and the way in which fonts are handled under System 7. You can't de-install fonts when running System 7 — either 7.0.x or 7.1 — when any application other than the Finder is running. But you can't quit At Ease. So if you want to de-install a font, you have to go to the At Ease control panel, turn it off, and restart the machine. Bummer.

Coming Attractions

Apple isn't standing still in the system-software department. Although there's nothing earth-shattering in this round of announcements, other projects are in the works that will bring major changes to the way people use Macs. The first of these will be OCE (see "On Beyond E-Mail," March '92, page 191) and AppleScript, due in late 1992 or early 1993. Later in 1993, QuickDraw GX will become available. These will be followed by voice and handwriting recognition. So, if you were thinking of switching to Windows, you might want to wait a little longer.

Henry Bortman, *MacUser*'s technical director, hopes to see the Level 2 driver before his infant daughter leaves for college.

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Breaking Out to the Big Screen:

PowerBook and SCSI Display Adapters

PowerBook, Plus, and Classic owners: You can now add an external monitor — but will you be satisfied?

BY BOB LEVITUS

Small screens can be a big problem. A PowerBook may be the perfect traveling companion for the peripatetic salesperson, but even the most understanding client will balk at viewing a presentation on a 10-inch monochrome screen. And back home on the desktop, the 9-inch screen of a compact Mac can cramp your spreadsheets and limit your view to a fraction of a desktop-publishing page.

Most small-screen Macs — the Classic, Classic II, and Plus and the first generation of PowerBooks — contain no video port or expansion slot for attaching an external monitor. And in addition to being confined to a small internal screen, the color capabilities of the PowerBook 140, 145, and 170 and the Classic II are trapped in a black-and-white world.

PHOTOGRAPHY: FRED STIMSON



PowerBook and SCSI Display Adapters

To the Rescue

Whenever Apple ignores a problem, you can expect other enterprising souls to quickly offer solutions. Display adapters have appeared that let Classic, Classic II, and Plus users connect their Mac to an external monitor via the SCSI port. PowerBook owners can now choose either a SCSI solution or an internal card. Although neither method is ideal, our testing proved SCSI display adapters to be more polished than their internally installed counterparts.

For this month's report, we tested six display adapters. Three fit inside a PowerBook, and three connect to a Mac's SCSI port. Of the cards designed to be installed inside a PowerBook, two — the Computer Care BookView Imperial and the Envisio Notebook Display Adaptor 030 — provide color-monitor support when installed in a PowerBook 140, 145, or 170. The third card — the Envisio Notebook Display Adaptor, which is for the PowerBook 100 — is limited to monochrome monitors (the PowerBook 100 doesn't support Apple's Color QuickDraw imaging model).

Of the three SCSI display adapters we tested, only one — the Radius PowerView — supports color monitors and can be attached to a PowerBook 140, 145, or 170; a Classic II; or any other color-capable Macintosh. The remaining two SCSI display adapters — the Outbound Outrigger Intelligent Monitor and the Sigma Power Portrait — provide monochrome output only, but they include a 15-inch full-page display.

Because of the remarkable popularity of the PowerBooks, many more display adapters began to appear after we had completed our testing (see the "On the Horizon" sidebar). Apple has also recognized the need for easy video connection and improvements in the internal displays of the PowerBook series. Two articles in this issue, "Presenters' Portables: The PowerBooks 160 and 180" and "The Convertible Mac: The Macintosh Duo System," detail Apple's latest responses to users' demands. First is the release of two new PowerBooks, the 160 and the 180, which have both a video port and a gray-scale display. Apple's second offering is an entirely new mode of notebook computing, in the form of the Macintosh Duo series.

Figure 1: Scrolling Speed

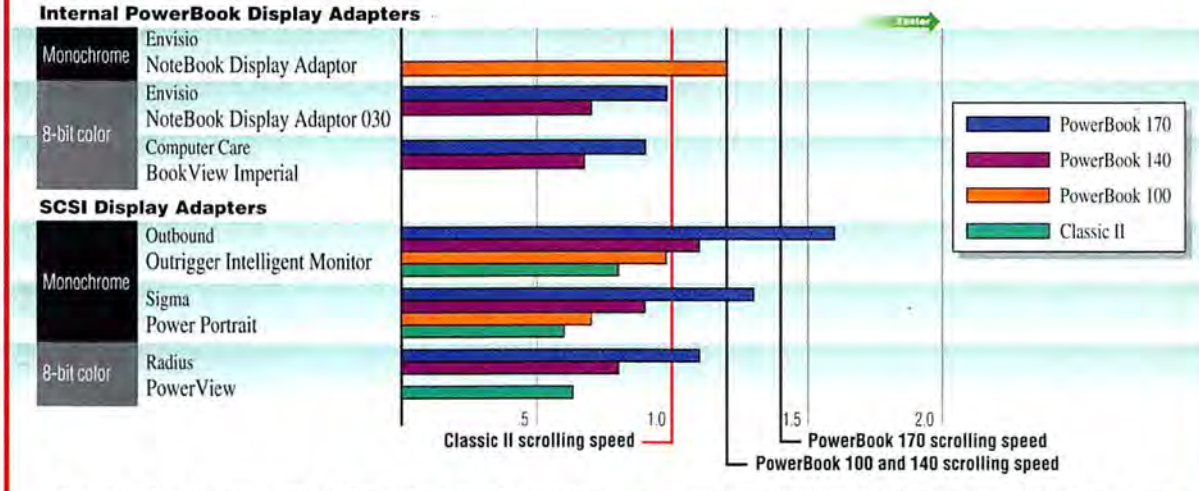


Figure 1: The performance of a PowerBook or SCSI display adapter is determined by the power of the Mac to which it's attached, whether or not the display is in color, and the efficiency of the adapter itself. We tested each adapter's efficiency by hooking it up to various Macs in turn and timing how long each system took to scroll through a ten-page Microsoft Word document. We compared each time with that required to scroll through the same document on the internal monitor of a Classic II.

Internal PowerBook Display Adapters:

We tested all three internal PowerBook adapters by hooking them up to an industry-standard 13-inch AppleColor High-Resolution RGB Monitor. The Envisio NoteBook Display Adaptor was tested in 1-bit (monochrome) mode; the other two adapters were tested in 8-bit (256-color) mode. Just as we expected, the systems with the color-capable adapters were far slower than that with the monochrome NoteBook Display Adaptor. The PowerBook 170 proved the fastest platform for a color internal display adapter, with the Envisio NoteBook Display Adaptor 030 narrowly edging out the Computer Care BookView Imperial.

SCSI Display Adapters:

The systems that include the two monochrome full-page-display-based adapters — the Outbound Outrigger Intelligent Monitor and the Sigma Power Portrait — both sped past the 8-bit-color Radius PowerView system, despite the fact that the 15-inch screens of the Outrigger Intelligent Monitor and the Power Portrait contain more than 80 percent more pixels than does the 13-inch AppleColor High-Resolution RGB Monitor that we used for testing the PowerView. Because the PowerBook 100 does not support color, we didn't use it to test the PowerView.

If, however, you already own a PowerBook and need to connect an external monitor, read on — Apple offers no upgrade path from the first generation of PowerBooks to its new video-capable models.

Don't Try This at Home

If you don't want — or can't afford — to sell your first-generation PowerBook and buy a new video-capable model and if you require the convenience of an internal video port that can support most standard monitors, your only choice is an internal Envisio Notebook Display Adaptor or Computer Care BookView Imperial. But don't try to install one yourself: PowerBooks are extremely cramped inside, and unauthorized opening voids Apple's warranty. All three internal cards are tricky to install, although the BookView Imperial's installation is significantly more complicated than that of either of the Notebook Display Adaptors. We suggest that you let an authorized service technician perform the installation.

If you have already purchased Apple's 2-megabyte expansion-RAM module for your PowerBook, you'll lose your investment if you buy a Computer Care BookView Imperial. Each internal display-adapter card uses the slot reserved for expansion RAM; the BookView Imperial's 6 megabytes of RAM are on the adapter card itself. The Envisio Notebook Display Adaptor 030 comes with 0, 2, 4, or 6 megabytes of RAM. A memory pass-through connector (an additional memory slot on the adapter card) allows you to also install the 2-megabyte module that comes with the 4-megabyte PowerBooks. The Envisio NoteBook Display Adaptor, for the PowerBook 100, has 2 megabytes of RAM but no expansion slot.

The port into which you plug the monitor cable (included) is one of the weak links of the Envisio NoteBook Display Adaptor: The cable slips out of the connector far too easily. The cable connector for the Envisio NoteBook Display Adaptor 030 is far more secure, but if the cable for either of the Envisio cards should come loose, you have to reboot your system to get your external monitor working again.

Figure 2: Not-So-QuickTime

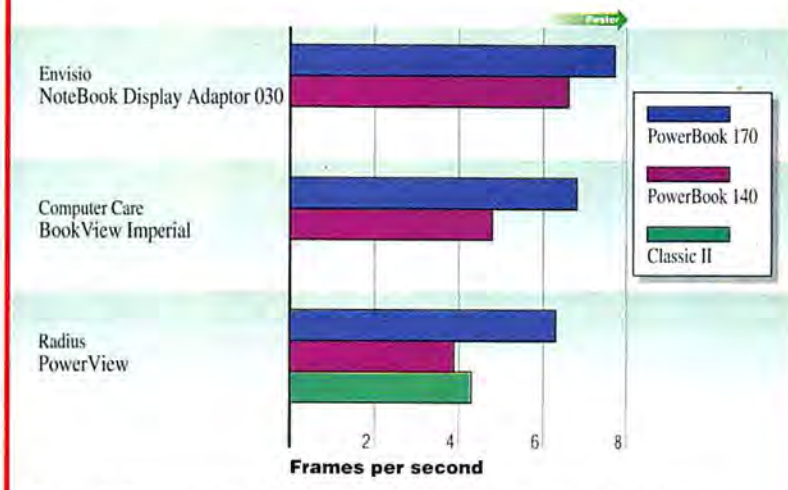


Figure 2: If you want to use one of these display adapters to run color QuickTime movies, be prepared to compromise on quality. The best frame rate achieved when displaying a 15-fps QuickTime file was 7.7 fps. That's because all these adapters must dither each frame of the QuickTime movie down to 8 bits from QuickTime's optimal 16 bits. The Radius PowerView slows the QuickTime presentation the most, because it must pass video information over the SCSI bus.

The Computer Care BookView Imperial's video port attaches to the rear of the PowerBook with double-sided tape. According to the manual, the tape needs 24 hours to cure. Although we cured the tape as instructed, it came loose from the PowerBook several times during our testing. Even so, the monitor cable (included) always fit snugly into the connector — and even if it did come loose, the BookView Imperial didn't require us to reboot the system.

After installing them, we discovered additional shortcomings of the Computer Care BookView Imperial and the Envisio NoteBook Display Adaptor 030. Neither support System 7's virtual-memory feature (the ability to treat space on a hard disk as additional RAM), and the BookView Imperial doesn't support either 32-bit addressing (a performance-enhancing memory-management mode) or the PowerBook's built-in RAM disk. Computer Care plans to add support for 32-bit addressing by the time this report appears in print.

The three SCSI display adapters support almost all of System 7's features (the one exception being that the Outbound Outrigger Intelligent Monitor doesn't support virtual memory) and are much easier to install: Just plug them in to your SCSI chain, and install their software. The Radius PowerView is the easiest of all — its connections fit securely, and the documentation is clear and informative. The Outbound Outrigger Intelligent Monitor and the Sigma Power Portrait each have minor cable-connection difficulties. The Power Portrait's downward-facing SCSI port is hard to reach, and the Outrigger Intelligent Monitor's two SCSI connectors are so close together that it's difficult — although possible — to connect two cables at the same time. Although the Outrigger Intelligent Monitor includes adequate documentation, we prefer the documentation that comes with the

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● UTI0113 CanOpener 2 59.
Advanced Software
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Aladdin Systems
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● UTI0303 StuffIt SpaceSaver 35.
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Apple Computer, Inc.
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ASD Software, Inc.
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● UTI0130 FileGuard 2.7 Office Pack 5 479.
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● UTI0202 OmniPage Professional 649.
Casa Blanca Works, Inc.
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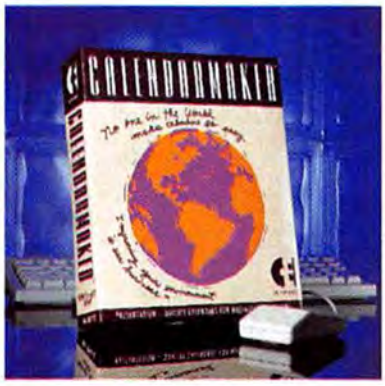
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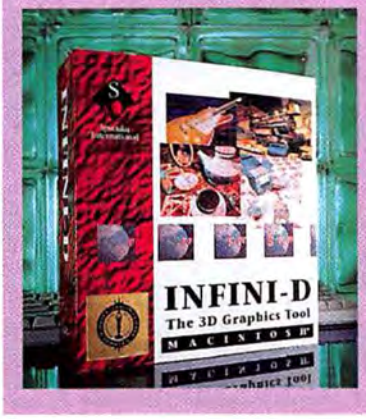
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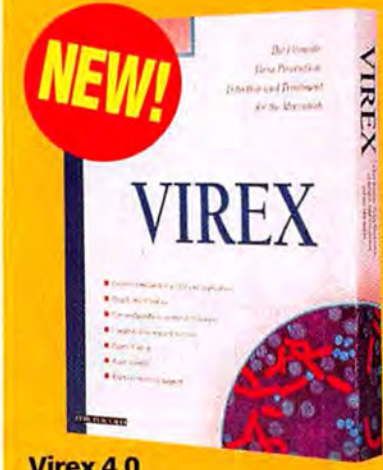
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Publisher: Optimum Resource, Inc. EDU0355

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2-1/2 MB	Remove only two 256k SIMMs, install two 1 MB SIMMs.
4 MB	Replace all four 256k SIMMs with four 1 MB SIMMs.
To upgrade a 2-socket Mac Classic II or LC to this amount of memory	**Do this: (Install in multiples of two only) SIMMs must be 100ns or faster**
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To upgrade a 2-socket Mac LC II to this amount of memory	**Do this: (Install in multiples of two only) SIMMs must be 100ns or faster**
6 MB	Install two 1 MB SIMMs.
To upgrade a 8-socket Mac II, IIx, IIci, IIcx or SE/30 to this amount of memory	**Do this: (Install in multiples of four only) SIMMs must be 120ns or faster**
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5 MB	Keep existing 256k SIMMs, install four 1 MB in remaining sockets.
8 MB	Remove all four 256k SIMMs, install eight 1MB SIMMs
To upgrade a 4-socket Mac IIsi to this amount of memory	**Do this: (Install in multiples of four only) SIMMs must be 100ns or faster**
5 MB	Install four 1 MB SIMMs.
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8 MB	Install four 1MB SIMMs.
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Power Portrait, which includes a concise and informative quick-start reference booklet.

Software Features

Each display adapter — internal or SCSI — comes with custom software. With the exception of Envisio's, all the software packages are intuitive and easy to use. The Radius PowerView's control panel has many features, including a built-in screen saver and a choice of preferences such as large-font menus and tear-off menus.

The Sigma Power Portrait's control panel lets you choose which monitor the menu bar should appear on and lets you adjust the relative positions of your screens. With the Power Portrait, you can also choose an external-monitor resolution of 72, 80, or 88 dpi — a feature not available with the Outbound Outrigger Intelligent Monitor. This feature is important for spreadsheet users, for example, who'll see 20 percent more cells at 88 dpi than at the WYSIWYG standard of 72 dpi, but the cells will appear smaller.

The software that comes with the Envisio display adapters is in the form of an extension, not a control panel, as is the software that comes with the others. It's also less convenient to use — to configure it for the monitor you're using, you must hold down the Option key while booting your system. Also, if no external monitor is connected, the internal PowerBook screen often comes up without a menu bar. When it does, you need to restart while holding down the mouse button to disable the extension software.

The Computer Care BookView Imperial's software gave us no problems — but there's little to it in the first place: It's a single-function control panel that lets you choose the setup for your external monitor.

The Outbound Outrigger Intelligent Monitor comes with a special control panel that lets you toggle its smooth-scrolling feature on and off; you configure the internal and external displays through the Monitors control panel.

Overall Performance

In addition to having superior software, the SCSI display adapters — although slightly slower than the internal adapters for most tasks — exhibited the fewest problems during our testing. The monochrome Outbound Outrigger Intelligent Monitor and Sigma Power Portrait were trouble-free, and the color Radius PowerView balked only during our most demanding color tests. All three internal cards fared less well. The Computer Care BookView Imperial is incompatible with several important features of System 7. Last and, sadly, least, was the Envisio NoteBook Display Adaptor 030, for the PowerBook 140, 145, and 170. In addition to its incompatibility with System 7's virtual-memory feature, it had serious color-palette problems, which Envisio has since fixed.

We arrived at these conclusions after testing the six display adapters on a Classic II and on a PowerBook 100, 140, and 170, as appropriate. Color tests, for example, were omitted during testing of the Outbound Outrigger Intelligent Monitor and the Sigma Power Portrait and during testing of any product attached to the PowerBook 100. One test, however, was common to all the products on all the platforms: To discover each adapter's overall video efficiency, we measured the speed of scrolling through a ten-page Microsoft Word document (see Figure 1). If a product performed poorly in this test, you can expect that it will be sluggish in most day-to-day operations.

Although the power of the Mac to which an adapter was attached was the most important factor in determining a system's scrolling speed, both monochrome SCSI adapters attached to each platform performed well, as did the Envisio NoteBook Display Adaptor with the PowerBook 100. The color products were quite a different story — we tested each of them on different platforms with a standard 13-inch AppleColor High-Resolution RGB Monitor, and each caused noticeable slowdown. The Radius PowerView, the only color-capable SCSI device we tested, caused a visible slowdown in scrolling speed, window zooms, and screen refreshing when we used 8-bit color. When we switched to 1-bit (black-and-white) mode, the screen scrolled and updated noticeably faster.

Powering Presentations

These basic tests uncovered each display adapter's overall performance, but we expanded our testing to see how the color-capable display adapters — the Computer Care BookView Imperial, the Envisio NoteBook Display Adaptor 030, and the Radius PowerView — performed with presentation platforms.

First, we subjected each color-capable display adapter to a deceptively simple but highly stressful Macromedia Director animation: a purple spinning children's top appearing in a dissolve and then bouncing across the screen of a 13-inch AppleColor display. Pixel-by-pixel dissolves force many more screen redraws than is typical in most animations — a

On the Horizon

Several new products for connecting your PowerBook or compact Mac to an external monitor have been announced since we tested for this report.

Aura Systems is now shipping two external display adapters, the ScuzzyGraph and the ScuzzyView, each of which works with all Macs that have a SCSI port. The ScuzzyGraph is sized to fit under a monitor, and the compact ScuzzyView is designed for the PowerBooks. For $895, the more advanced configuration of each of these adapters gives you 8-bit color on 19-inch and smaller monitors. Less expensive configurations with limited color and monochrome-only capabilities are available for $695 and $595, respectively. Aura Systems, Inc., P.O. Box 4578, Carlsbad, CA 92008; 619-438-7730.

Lapis Technologies' external display adapters, the PowerBase I and PowerBase II, are also designed to be monitor stands. The PowerBase I is a monochrome-only version; the PowerBase II

supports 8-bit color and gray scale on 12-, 13-, and 16-inch monitors and 4-bit gray scale on Apple's full-page display. The PowerBases work with the Classic, Classic II, Plus, SE, and SE/30 and with the PowerBooks. The PowerBase I costs $599; the price of the PowerBase II was not available at press time. Lapis Technologies, Inc., 1100 Marina Village Parkway, Suite 100, Alameda, CA 94501; 510-748-1600.

The SuperView, SuperMac's external display adapter for the PowerBooks, supports monitors as large as 20 inches in 8-bit color and gray scale. It also allows NTSC or PAL composite output, so you can hook a PowerBook up to an LCD panel or a TV. The SuperView costs $799. SuperMac Technology, 485 Potrero Avenue, Sunnyvale, CA 94086; 408-245-2202.

Four new PowerBook internal display adapters are now available. The Envisio ColorBook 16 and the Computer Care BookView Imperial with 16-bit color are two of the few products that let you run QuickTime video from your PowerBook on a 12-, 13-, or 16-inch monitor. With an additional 2 megabytes of RAM, the Envisio ColorBook 16 costs $1,295; with 4 megabytes, $1,595; and with 6 megabytes, $1,895. Envisio, 510 First Avenue N., Suite 303, Minneapolis, MN 55403; 612-339-1008.

The Computer Care BookView Imperial with 16-bit color was expected to ship by the time you read this. The price wasn't available at press time. Computer Care, 420 N. 5th Street, Suite 1180, Minneapolis, MN 55401; 800-950-2273 or 612-371-0061.

Mirror Technologies and Lifetime Memory Products also make internal display adapters for the PowerBook 140 and 170. Each gives you 8-bit color on 12- and 13-inch Mac and VGA monitors. The Mirror PowerVision costs $549 without extra memory, $799 with an extra 2 megabytes of RAM, and $1,049 with 4 megabytes. Mirror Technologies, Inc., 2644 Patton Road, Roseville, MN 55113; 612-633-4450.

The Lifetime Memory Video+ costs $795 with an additional 4 megabytes of RAM and $995 with 6 megabytes. For $595, you can also get a monochrome version for the PowerBook 100 that comes with 2 megabytes of RAM. Lifetime Memory Products, Inc., 305 17th Street, Huntington Beach, CA 92648; 714-969-2421.

Two new monitors with built-in display adapters are the Mirror Technologies ViewPort and the RasterOps ClearVue/SD21. At $749, the ViewPort is one of the least expensive products for hooking up your compact Mac or PowerBook to a 15-inch monochrome portrait monitor. The RasterOps ClearVue/SD21 is a 21-inch monochrome monitor that works with all SCSI Macs and sells for $1,799. RasterOps, 2500 Walsh Avenue, Santa Clara, CA 95051; 408-562-4200.

— Nancy Peterson

particularly difficult challenge for the SCSI-based Radius PowerView, which, as we expected, had problems.

The PowerView failed to display the dissolve unless we moved the cursor over the area where the dissolve should have appeared (the Mac's system software constantly updates the area surrounding the cursor) and left small remnants of earlier images on-screen as the ball moved. If your multimedia presentations contain dissolves, either avoid the PowerView or substitute a less challenging transition effect.

The Computer Care BookView Imperial was the only product that completed this test successfully. The Envisio NoteBook Display Adaptor 030 displayed the dissolve effect successfully, but it had some trouble with the animation's color palette — the ball appeared in a rainbow of colors instead of in full purple. As we finished testing, Envisio was working on a solution to this color-management problem.

Although our test animation stumped two of the three color-capable display adapters, all three managed to complete our next presentation test — QuickTime-movie playback — but their performance was less than stellar (see Figure 2). Each display adapter is limited to 8-bit video (256 colors), and QuickTime is based on a 16-bit imaging model (32,768 colors). Our test platforms, therefore, had to transform each frame of our 15-fps (frames per second) QuickTime movie from 16- to 8-bit color. The faster the Mac to which the display adapter is attached can perform this translation, the higher the playback rate and the smoother the movie appears on-screen.

The Envisio NoteBook Display Adaptor 030 edged out the Computer Care BookView Imperial when installed in a PowerBook 140 or 170, in part because of the NoteBook Display Adaptor 030's support for 32-bit memory addressing. As is to be expected from a SCSI device, the Radius PowerView displayed fewer frames per second than either of the internal products — the quality was barely acceptable.

Finally, we used each of the color-capable displays to run a complex Aldus Persuasion slide show that included wipes and dissolves. The Computer Care BookView Imperial and the Radius PowerView passed this test with flying colors. Despite our repeated attempts, the Envisio NoteBook Display Adaptor 030 had problems, but Envisio promises that these shortcomings will be fixed before this article appears.

Technical Support

The number of problems we uncovered during testing reinforces our belief that competent, responsive technical support is of great importance to buyers of display adapters — especially for travelers whose PowerBook serves as an office away from home. Our tests showed that the quality of tech support for these six display adapters varied greatly.

Members of our testing staff (not identifying themselves as being from *MacUser*) called each vendor's tech-support department with a simple problem — an incorrect SCSI-ID setting for the SCSI adapters and an incorrect monitor setting for the internal adapters. Support representatives from

both Radius and Envisio answered our calls quickly and were able to answer our questions immediately — and correctly — without putting us on hold.

Sigma Designs' technicians provided a correct response after putting us on hold for 5 minutes. Representatives from Outbound Systems diagnosed and solved our hypothetical problem correctly — but it took two calls for them to do so.

Computer Care was the least helpful of the bunch. Although the technical-support representative promised to call back within 45 minutes of our first call, we didn't get a call back until the next day — and although we provided several clues, our problem was diagnosed incorrectly.

Best Bets

The first generation of PowerBooks — the 100, 140, 145, and 170 — was never designed to support external monitors. Because designing an internal display adapter for these PowerBooks is a Herculean engineering feat — there isn't much room inside for a card, and there is no ideal location for the cable connector — we weren't surprised that none of the internal display adapters we tested performed well enough for us to recommend it unconditionally.

On the other hand, the SCSI display adapters — the color Radius PowerView and the monochrome, full-page-display Outbound Outrigger Intelligent Monitor and Sigma Power Portrait — are straightforward, if somewhat slow, ways to break out of the confines of your small-screen Mac or PowerBook.

If you have a PowerBook 140, 145, or 170 or a Classic II and you need access to an external color monitor, go the SCSI route and buy a Radius PowerView — its extra weight won't make a significant difference to your carry-on luggage.

For those who absolutely must have an internal video port, our advice is to sell your PowerBook and buy a new PowerBook 160 or 180. Unlike the first-generation PowerBooks, these new models are designed to allow the easy addition of a color display. For the pinnacle of portability and color convenience, check out a member of the new Macintosh Duo family.

For those who have a Macintosh Classic, Classic II, Plus, or PowerBook 100 or a color-capable PowerBook but are satisfied with a black-and-white, full-page display that remains on the desktop, both monochrome SCSI products — the Outbound Outrigger Intelligent Monitor and the Sigma Power Portrait — are easy to install, free from glitches, and moderately priced.

Bob LeVitus is the author of *Dr. Macintosh*, second edition, and *Dr. Macintosh's Guide to the On-Line Universe*.

The Bottom Line

If you have a small-screen Mac — whether it be a PowerBook or a member of the compact-Mac family — you may sometimes wish for a big, bright, colorful screen. You can attach a big-screen display to a slotless Mac in two ways: by using a card that fits inside a PowerBook 100, 140, 145, and 170 or by using a display adapter that connects to a Mac's SCSI port. In our tests, we found that the SCSI adapters were adequate performers; the internal display adapters were less successful.

For those who don't mind the inconvenience of carrying a brick-and-cable system, we recommend the color **Radius PowerView** ($599 list, $530 street), a SCSI display adapter that's less than half the price of color internal adapters. Although it slows system performance, it produces acceptable results, unless you use it for complex animations or QuickTime movies.

If portability and color are not important to you, consider the **Sigma Power Portrait** ($995 or $1,095 list, $800 or $850 street) and the **Outbound Outrigger Intelligent Monitor** ($949 list, $800 street). Each is a monochrome full-page display that connects to the SCSI port on your Mac or PowerBook, but each suffers from the slow performance of SCSI-based video. Of the two, the Power Portrait earns extra points for providing multiple resolutions and a choice of color: platinum or granite.

If you must have the convenience of a video port on your PowerBook 100, 140, 145, or 170, investigate the best of the internal display adapters, the **Computer Care BookView Imperial** ($1,399 list, $1,150 street). However, its high price suggests that selling your first-generation PowerBook and buying one of the recently announced gray-scale PowerBooks, which are equipped with a video port, might be a better use of your money.



Four products for attaching a big screen to your slotless Mac or to add color to your PowerBook or Classic II: the Radius PowerView (front left), Computer Care BookView Imperial (front right), Outbound Outrigger Intelligent Monitor (rear left), and Sigma Power Portrait (rear right).

Table 1: Features of Internal PowerBook Display Adapters

● = yes ○ = no	Computer Care BookView Imperial ‡‡‡	Envisio NoteBook Display Adaptor ‡‡‡	Envisio NoteBook Display Adaptor 030 ‡‡
List price	$1,399	$495	$1,395*
Street price	$1,150	$275	$1,150*
Pros	Includes expansion RAM. Most trouble-free internal display adapter.	Includes expansion RAM. Inexpensive.	Includes expansion RAM.
Cons	Doesn't support virtual memory, 32-bit addressing, or RAM disk.†	No pass-through connector for expansion memory. Must reboot system if monitor is unplugged.	Doesn't support virtual memory. Must reboot system if monitor is unplugged.
Hardware			
Mac models supported	PowerBook 140, 145, 170	PowerBook 100	PowerBook 140, 145, 170
Monitors supported	Apple-compatible 12-, 13-, 15-, 16-inch; SVGA; VESA 19-inch; VGA	Apple-compatible 13-, 15-, 21-inch; VGA	Apple-compatible 12-, 13-, 15-, 16-, 21-inch; MultiSynch; VGA
Bit depths supported	8 bits	1 bit	1, 4, 8 bits
RAM configurations	6 MB	2 MB	0, 2, 4, 6 MB
Power consumption (active, idle)	4 watts, .35 watts	1.25 watts, .6 watts	2.15 watts, 1.2 watts§
Cables supplied	●	●	●
Software			
Control via Monitors control panel	●	○	○
Virtual-memory support	○	○	○
32-bit-addressing support	○	○	●
RAM-disk support	○	●	●
Other			
Warranty	1 year	1 year	1 year
FCC certification	Class B (pending)	Class B (pending)	Class B (pending)
Company	Computer Care, Inc. 420 N. 5th St., Ste. 1180 Minneapolis, MN 55401 800-950-2273 612-371-0061 612-371-9342 (fax)	Envisio, Inc. 510 First Ave. N., Ste. 303 Minneapolis, MN 55403 612-339-1008 612-339-1369 (fax)	Envisio, Inc. 510 First Ave. N., Ste. 303 Minneapolis, MN 55403 612-339-1008 612-339-1369 (fax)

*Price with 4 megabytes of RAM (as tested); a 6-megabyte configuration is available for $1,695 list ($1,333 street).

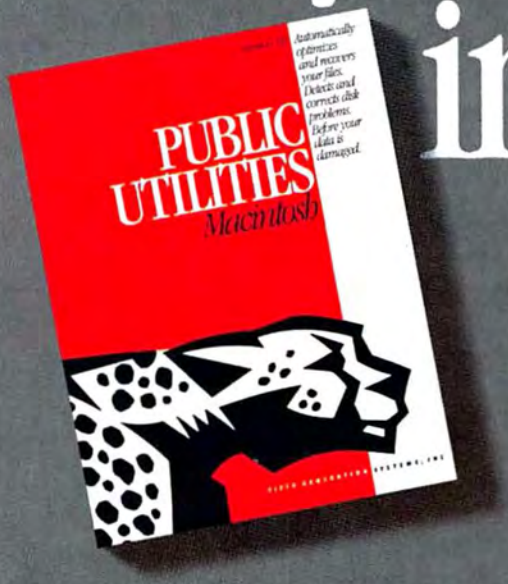
†An upgrade that supports 32-bit addressing should be available by the time this report is in print.

§For a 4-megabyte model.

Table 1 and 2 Criteria

Mac models supported — The Mac models that work with the adapter.
Monitors supported — The types and sizes of the monitors that can be used with the adapter.
Bit depths supported — The number of bits per pixel the adapter supports.
RAM configurations — The amount of memory expansion that comes with an internal display adapter (installing an internal adapter precludes conventional memory expansion).
Power consumption (active, idle) — The amount of power the adapter draws from the PowerBook when the video port is active (a monitor is connected) and when the video port is inactive (no monitor is connected), in watts.
Vertical-refresh rate — The number of times the screen image is entirely redrawn on the screen per second, in hertz.
Horizontal-scan rate — The number of times each horizontal line of an image is redrawn across the screen per second, in kilohertz.
Active screen area — The dimensions of the portion of the screen that lights up, in inches.
Resolution — The number of dots (pixels) per inch, measured horizontally.
Antiglare treatment — Does the monitor screen contain a coating designed to eliminate or diffuse reflected light?
Tilt/swivel stand — Does the monitor ship with a swivel stand attached?
Cables supplied — Does the unit ship with all necessary cables?
Control via Monitors control panel — Is control of the adapter possible through the Monitors control panel?
Virtual-memory support — Is the adapter compatible with System 7's virtual memory, which lets you assign a portion of your hard disk for use as RAM?
32-bit-addressing support — Is the adapter compatible with System 7's 32-bit-addressing feature, which can improve performance?
RAM-disk support — Is the product compatible with System 7's RAM-disk feature?
FCC certification — The type of FCC Grant of Certification the unit has. (Class B certification is more stringent than Class A and is required for residential use.)

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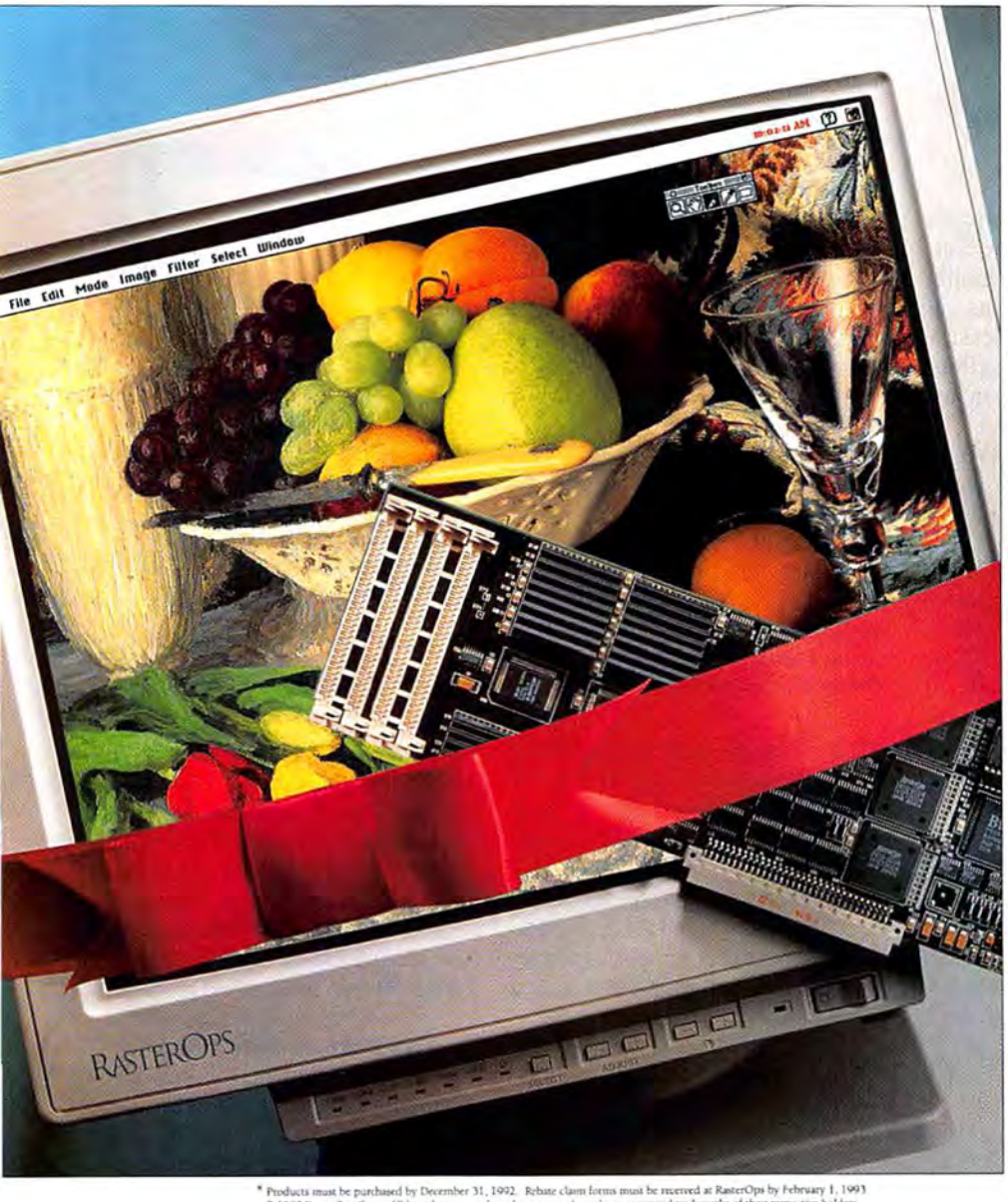


FIFTH GENERATION SYSTEMS, INC

Table 2: Features of SCSI Display Adapters

● = yes ○ = no	 **Outbound** **Outrigger Intelligent Monitor** **ttt**	 **Radius** **PowerView** **ttt½**	 **Sigma** **Power Portrait** **ttt½**
List price	$949	$599	platinum, $995; granite, $1,095
Street price	$800	$530	platinum, $800; granite, $850
Pros	Integrated full-page display/ adapter. Easy installation. Fastest SCSI display adapter. Supports Outbound notebooks.	Most trouble-free color-capable display adapter. Supports Radius Pivot monitors (color and gray-scale). Easy installation.	Integrated full-page display/ adapter. Easy installation. Multiple resolutions. Supports Outbound notebooks. Available in two colors.
Cons	1-bit monochrome only.	Works with 68020- and 68030-based Macs only. Slowest SCSI adapter when set to 8-bit color.	1-bit monochrome only.
Hardware			
Mac models supported	Classic, Classic II, Mac II family, Plus, PowerBooks, SE, SE/30	Classic II, PowerBook 140, 170	Classic, Classic II, Plus, Portable, PowerBooks, SE, SE/30
Monitors supported	15-inch full-page display	Apple-compatible 13-, 15-, 16-, 21-inch (monochrome), Radius Pivot, VGA	15-inch full-page display
Bit depths supported	1 bit	1, 4, 8 bits	1 bit
Power consumption	70 watts	10 watts	60 watts
Monitor			
Vertical-refresh rate	72 Hz	NA	97 Hz
Horizontal-scan rate	66.7 kHz	NA	78.7 kHz
Active screen area	8 x 10.5 in.	NA	8 x 10.7 in.
Resolution	82 dpi	NA	72, 80, 88 dpi
Antiglare treatment	●	NA	$50 option
Tilt/swivel stand	●	NA	●
Cables supplied	●	●	●
Software			
Control via Monitors control panel	●	●	●
Virtual-memory support	○	●	●
32-bit-addressing support	●	●	●
RAM-disk support	●	●	●
Other			
Warranty	1 year	1 year	1 year
FCC certification	Class A	Class B	Class B
Dimensions (L x W x H)	12.90 x 16.25 x 11.75 in.	4.53 x 8.63 x 2.23 in.	14.50 x 15.25 x 11.15 in.
Company	Outbound Systems, Inc. 4840 Pearl East Cir. Boulder, CO 80301 800-444-4607 303-786-9200 303-786-8611 (fax)	Radius, Inc. 1710 Fortune Dr. San Jose, CA 95131 800-227-2795 408-434-1010 408-434-0770 (fax)	Sigma Designs, Inc. 47900 Bayside Pkwy. Fremont, CA 94538 800-845-8086 510-770-0100 510-770-2640 (fax)

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Presentation Monitors

Bigger is better when you're promoting your big ideas, but the price for success can be high.



Figure 1: Your presentations are 21 times as large as those on an AppleColor 13-inch monitor (left) when displayed on a gargantuan Sony RVP-6000Q (background) and 8 times as large on a Mitsubishi Diamond Pro 37 (right).

Whether you're pitching an important client or conducting in-house training seminars, your results depend on how well you convey your ideas. A giant monitor is not only an effective presentation aid but also an impressive one.

The Mitsubishi Diamond Pro 37 and the Sony RPV-6000Q, enormous autosynchronous monitors that work with either a Mac or a PC, have screens big enough for your most important ideas. The Diamond Pro 37 contains a 37-inch *CRT* (cathode-ray tube) similar to — but much larger than — the picture tube in your TV. The RPV-6000Q, on the other hand, contains three projectors that beam red, green, and blue light onto a 60-inch *rear-projection screen* designed to remain bright in a well-lighted room.

Each monitor supports multiple resolutions: as high as 1,024 x 768 pixels for the Diamond Pro 37 and as high as 1,280 x 1,024 pixels for the RPV-6000Q — although few Mac display cards can support the highest resolutions. The RVP-6000Q must be set up by your dealer, and because it weighs 450 pounds, you may have to pay equally hefty shipping and handling fees. The 225-pound Diamond Pro 37 is easier to set up, but its attractive cabinet-equipped pedestal is a $995 option.



In August '92, we looked at autosynchronous monitors for your desktop. This month's monitors are for your conference room.

How They Look

Our jury of display-system experts examined each monitor for focus, geometry, color accuracy, and visual-nuisance factors at a resolution of 640 x 480 pixels, the resolution of the 13-inch AppleColor High-Resolution Monitor, commonly used for presentations.

The direct-display technology of the Diamond Pro 37's CRT helps make its display sharper than that of the RPV-6000Q — better for up-close viewing. The RPV-6000Q is brighter but is hampered by a limited viewing angle. If viewers are closer than 10 feet and off to one side, they may have difficulty reading the screen. The RPV-6000Q also has a less stable image — a higher *nuisance factor* — but imperfect image stability is hardly noticeable from 10 feet and beyond.

The Bottom Line

The right tool makes your presentation powerful and your ideas memorable. For a small conference room in which the audience is sitting 4 to 25 feet from the screen, the Mitsubishi Diamond Pro 37, with its excellent focus and wide viewing angle, is ideal. The Sony RPV-6000Q's 60-inch screen has an effective range of 10 to 45 feet — when placed in a corner or used in a narrow conference room, it can wow a larger crowd.

— Darryl Chan

PHOTOGRAPHY: STAN MUSILEK

Figure 2: Big-Screen Performance

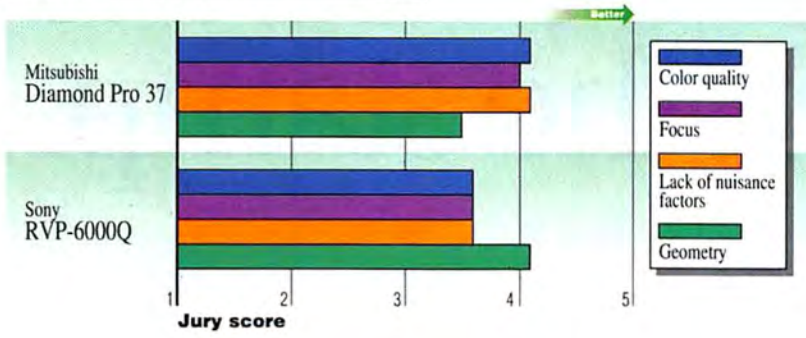


Figure 2: Our jury of monitor experts conducted focus and geometry tests to examine the sharpness and accuracy of each monitor, a color test to look at the hue and saturation of each monitor's colors, and a nuisance-factor test to detect image fluctuations that can cause eyestrain. Scores were on a scale of 1 (poor) to 5 (excellent). The Mitsubishi Diamond Pro 37 was judged ideal for a small conference room. The Sony RVP-6000Q was the unanimous choice for presentations to larger crowds.

Figure 3: A Giant Choice

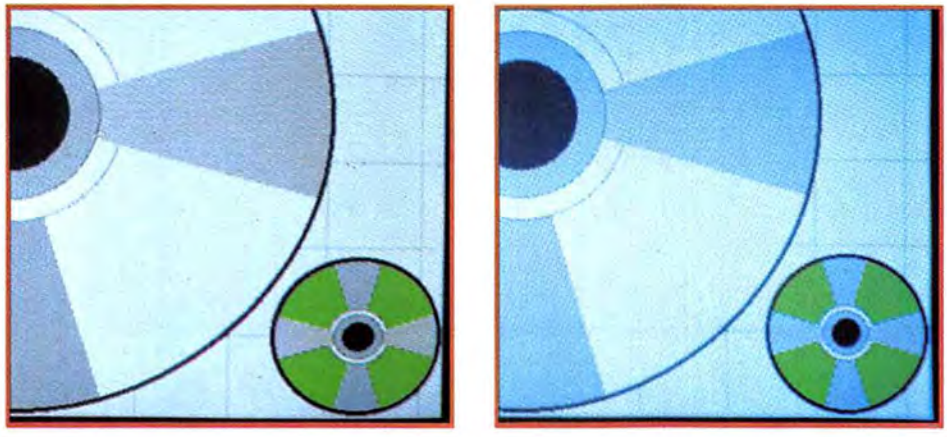
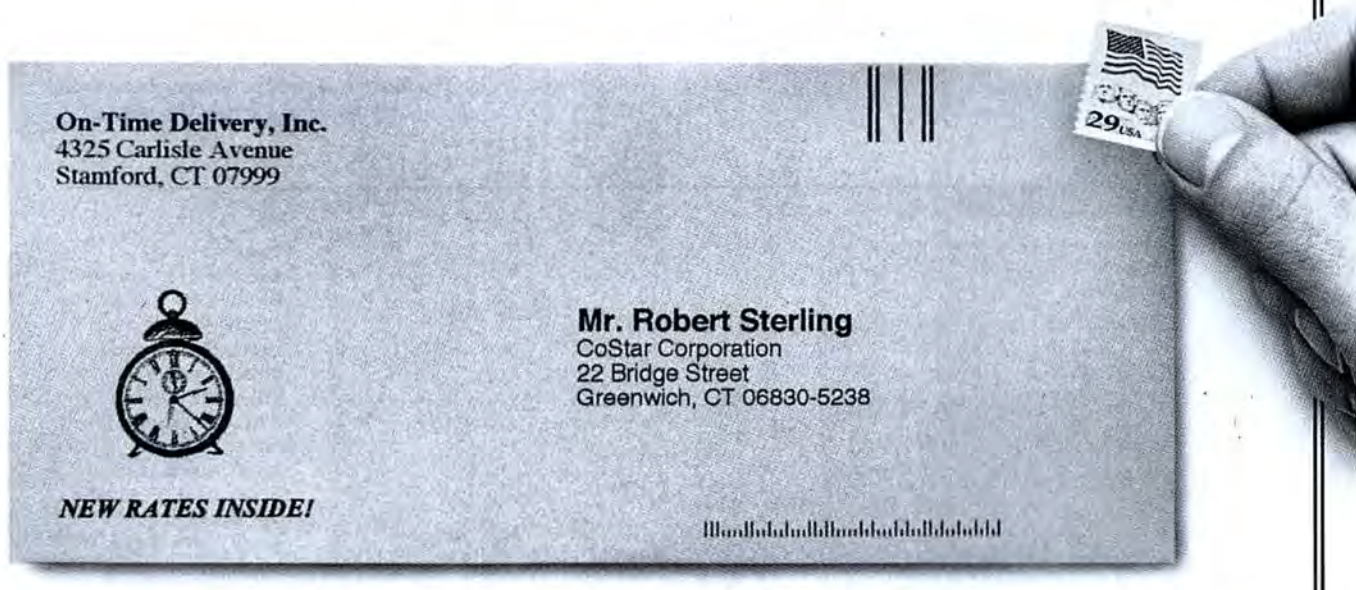


Figure 3: The Mitsubishi Diamond Pro 37 (left) has a large CRT with a rounded bezel that causes the small circle to look sharp but slightly distorted around the edges. The rear-projection screen of the Sony RVP-6000Q (right) displays a small circle that's brighter and more geometrically accurate but not as sharp.

Table 1: Pros and Cons

	Mitsubishi Diamond Pro 37 ★★★½	**Sony RVP-6000Q** ★★★★
List price	$9,995	$22,000
Street price	$7,900	$22,000
Pros	Good focus. Wide viewing angle. Bright colors. Easily accessible system connections.	Immense screen. Easy-to-use controls. Good documentation. Illuminated remote control.
Cons	Poor documentation. Imperfect geometry due to large CRT. Monitor pedestal, $995. Mac video cable, $54.	Expensive. Limited viewing angle. Requires dealer installation. System connections at an awkward angle. Mac video cable, $185.
Company	Mitsubishi Electronics America, Inc. 5665 Plaza Dr. Cypress, CA 90630 800-843-2515 714-220-2500 714-229-3864 (fax)	Sony Business and Professional Group 3 Paragon Dr. Montvale, NJ 07645 800-523-7669 201-930-1000 201-358-4274 (fax)

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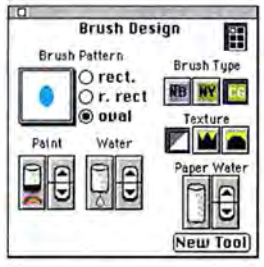
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By Pamela Pfiffner



Smock and beret optional: Paint sea scenes of the seashore with WaterColor, from AXA. This painting program lets you mix colors on a palette, vary the amount of "water" on the paper to control how colors bleed together, and sharpen or blunt the paintbrush. You can use a mouse, but a pressure-sensitive stylus is better. WaterColor isn't as fully featured as Fractal Design's Painter, for example, but at $79, it costs a lot less and it's packaged in **a pure-cotton T-shirt.** 714-757-1766. ♟ If WaterColor, Painter, and other "natural media" graphics software sound appealing but you've got only a black-and-white Mac, then Fractal's Sketcher is for you. This $149 gray-scale painting program combines the palette of tools and textures available in Painter — waxy crayons, dirty felt pens, **Van Gogh brush strokes,** coarse paper — with sophisticated image-editing features (siphoned from the departed ImageStudio). Tear-off toolboxes, minimal memory requirements (2.5 megabytes), and quick-resize commands make Sketcher suitable for the tiniest screens. 408-688-5300.

Season's readings: *Designers on Mac* will look good on the trendiest coffee table. This **lavishly illustrated,** made-in-Japan book showcases the Mac-produced work of such au courant designers as Neville Brody, Erik Spiekermann, and April Greiman and then steps you through the creation of representative projects. The $79.95 book was written by DTP maven Diane Burns and produced entirely on Mac-based systems and is distributed by Gingko Press. 707-579-8772. ♟ To the font fanatic in your life, give *The ITC Directory of New Typefaces,* a quarterly compendium of digital fonts released from foundries worldwide since January 1992. What sets these spec sheets apart from others is that they note **distinctive characters** for easy visual identification and include such information as other faces in the family. An extensive index cross-references fonts in six ways. 212-371-0699. Annual subscription, $120; for charter subscribers, $75.



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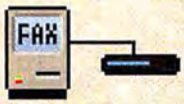
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GREAT FAX QUALITY. As a graphic designer, I care about how things look. That's why I was thrilled when I saw how clear the faxes I send look when they reach the fax machine on the other end! It doesn't matter whether I'm sending a quick memo, or a proof page, the SupraFAX-Modem faxes a near laser quality, perfect page.





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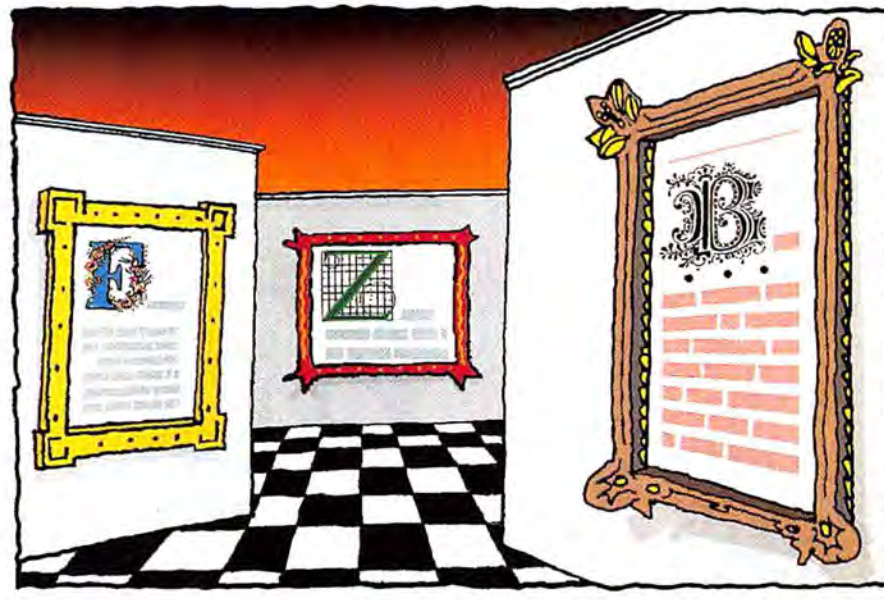
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Art and Letters

To add graphic interest to your publication, look no further than the type in front of you. Initial caps — those overblown letters that often start paragraphs — can be as simple or complex as your software and imagination allow.

By Janet Ashford



When it comes to page layout, type is more than text or headlines. Special letterforms add graphic interest to a document and draw the reader's attention to the text. For desktop publishers, using initial caps — the large letters that begin paragraphs — is one of the easiest and most cost-effective ways to spruce up a bland page.

Decorative letters have long been used for printed communication. Medieval hand-written manuscripts were "illuminated" with elaborately painted and illustrated letters. Early printed books included initial caps printed from woodcuts and engravings. The development of photo-offset printing made it possible to reproduce virtually any artwork, including initial caps, in-line art, halftones, and full color.

Today, desktop publishers have it made. Letters that took Albrecht Dürer many hours to draw (see Figure 1) can be scanned and placed in a page layout in minutes. You can draw your own display type with a PostScript illustration or font-creation program, or you can spice up an existing font with a painting or image-retouching program. With clip art, you have access to the decorative fonts of yesterday and today. If you prefer hallmarks of the electronic age, you can use any number of modern tools to produce custom letters unique to the medium (jaggy edges, bit-mapped textures, photos, gradations placed into letterforms, and so on).

It doesn't matter which page-layout program — Aldus PageMaker, Aldus Personal Press, Frame Technology's FrameMaker, Kodak's Renaissance Design Software, Manhattan Graphics' Ready,Set,Go!, Quark's QuarkXPress, or Timeworks' Publish It! Easy — you use. Adding graphic interest to your publication is as simple as increasing the point size of characters typed in a PostScript font (these function as text elements) or as elaborate as importing scanned, auto-traced, or drawn letters from another program (these function as graphic elements). How you integrate these into your layout depends on whether the caps are text or graphic elements and whether the cap is raised so it towers above the other letters in the line or dropped so it nestles in or next to the text block.

Text as Texture

If all you need is a simple letter in an off-the-shelf font, creating an initial cap as a text element in your page-layout program is the most direct method. With this approach, design variations are limited to changing the type style and letter position.

Standard Raised Caps. To create a raised initial cap, simply select the first letter in a text block and increase its point size (This technique works in any word-processing program too). The baseline of the enlarged letter remains the same as that of the first text line, and the height of the letter increases. Be sure to keep the leading constant for the entire paragraph, so that the increased point size of the first letter doesn't create an extra amount

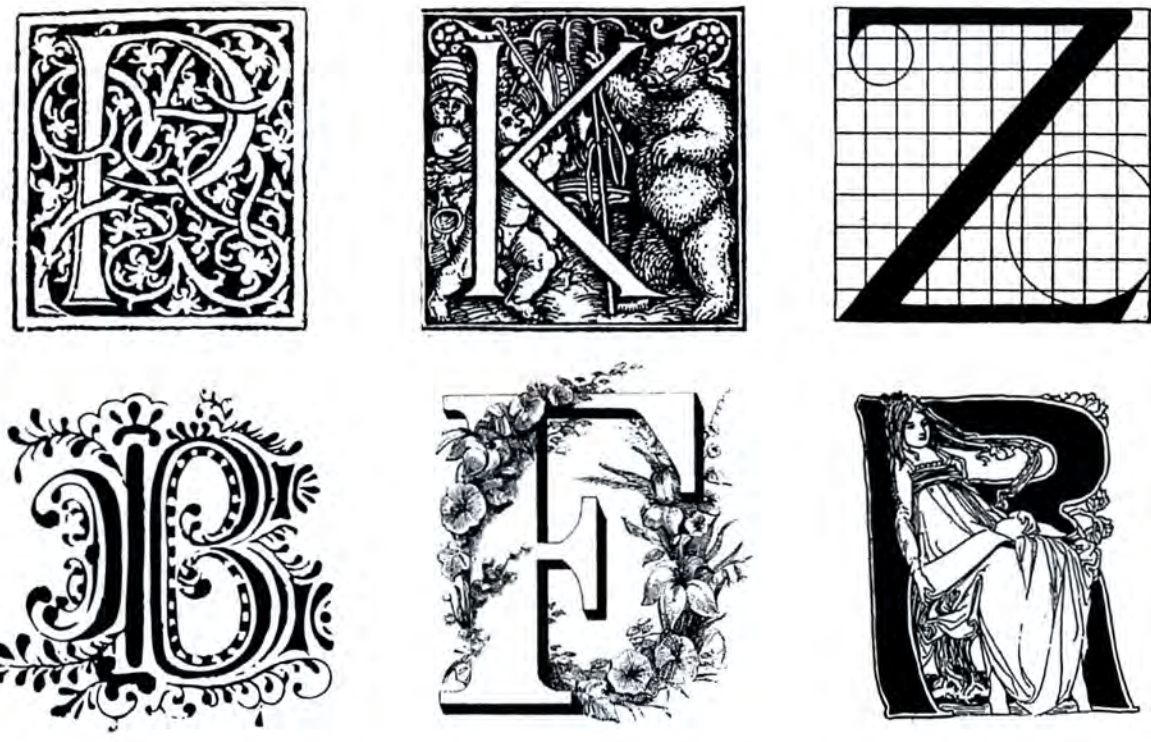


Figure 1: Today, as in the past, initial caps add graphic interest to manuscripts. These historical examples, most of which are taken from books in the Dover Pictorial Archives series of copyright-free art and design, were scanned as 1-bit TIFFs at 300 dpi and then reduced about 50 percent after placement in this article. (The letter *B* was auto-traced from the original scan in Adobe Streamline and saved as an EPS file.) From top left: *P* from an ornamental title page printed in 1477 by Erhard Ratdolt in Venice; *K* from a children's alphabet designed by Hans Weiditz in 1521 in Augsburg; *Z* from Albrecht Dürer's *On the Just Shaping of Letters,* 1535; *B* from an 18th-century Austrian ornamental alphabet design (all from *Alphabets and Ornaments,* by Ernst Lehner [Mineola, New York: Dover Publications, 1968]); a floral *F* from *Victorian Decorative Initials* (Dover, 1989); and a languid *R* from *Art Nouveau Initials* (Dover, 1989).

of leading between the first and second lines. When a raised initial cap falls between two paragraphs, allow extra space equivalent to lines of body text to ensure proper vertical alignment with adjacent columns of text.

Standard Drop Cap. With a drop cap, the top, or "ascent," of the initial cap aligns with the ascenders of the first line of text — the topmost reaches of letters such as *t, l,* and *k* — and the baseline of the cap extends into the text block. Drop caps are called two-line, three-line, and so on, depending on their size in relation to the body text. Many programs, such as PageMaker, Personal Press, QuarkXPress, and Renaissance, have automatic drop-cap features, but in most other programs, you create drop caps by positioning a separate text block. You have to calculate the initial cap's point size, taking body-text size and leading into consideration. Manually aligning text blocks can be tricky. The screen isn't a reliable indicator of how accurate your placement is, and you have to print lots of page proofs to check alignment.

Because initial caps function as graphics in your publication, take advantage of the graphics capabilities of your page-layout program by importing jazzed-up letters from other programs.

QuarkXPress' automatic Drop Caps option (in the Paragraph Formats dialog box) lets you designate how many letters you want capitalized and how many lines deep you'd like them to be (see Figure 2). Renaissance lets you specify the size of a drop cap, in points as well as in lines, and the amount of vertical and horizontal offset for the letter. PageMaker 4.2 includes a drop-cap function among its set of Aldus Additions (see Figure 3). Personal Press provides several drop-cap options through its Additions technology: You have a choice of Drop, Raised, or Adjacent (hanging) caps, boxed or not.

Hanging Initial Caps. A hanging initial cap is positioned to the left of the text block, and unlike with a regular drop cap, text doesn't wrap beneath it. With a hanging raised cap, the baseline aligns with that of the first text line. To create one, you increase the point size of the first letter and then indent the second and subsequent lines (see Figure 4). Never use tabs to align the text block; if you make any changes, the text won't reflow and you'll have to remove unsightly gaps manually.

For a hanging drop cap, again, align its ascent with the top of the first text line. Create a hanging drop cap by using your



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page-layout program's best method for creating a drop cap and then indent the text lines that fall below the baseline of the drop cap (see Figure 5). QuarkXPress excels in this area: Its Insert Here command (Command-\) instantly aligns the entire text block after a drop cap.

Graphical Ease

Because initial caps function as graphics in your publication, take advantage of the graphics capabilities of your page-layout program by importing jazzed-up letters from a drawing or painting program or by creating special effects with the tools built in to the layout application.

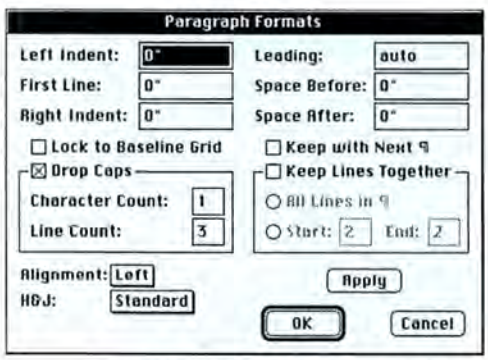


Figure 2: The Drop Caps controls in QuarkXPress' Paragraph Formats dialog box make it easy to create drop caps automatically. You specify the number of letters to be converted to caps (Character Count) and the depth of the caps in text lines (Line Count). This type of interface relieves you from having to calculate the exact point size of initial caps.

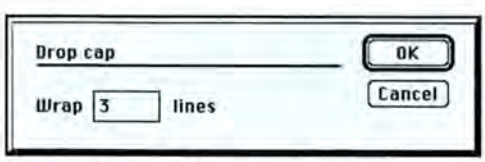


Figure 3: To instantly generate drop caps with PageMaker's Drop Cap Addition, you select the letter or letters to be affected and enter the desired depth in lines. The Addition works by converting the initial letter to a subscript and creating tabs to indent the lines to the right of the initial. If the text is edited later, however, it may wrap incorrectly and you'll have to start all over again.

By treating the initial cap as a graphic element, you can wrap text around it either by using your program's automatic-runaround feature or, for precision control, by manually arranging the lines of body type to fit the letter's curves (see Figure 6). In PageMaker, you have to adjust the text-wrap boundaries to follow the lines of the type; QuarkXPress' AutoImage feature matches the contours of a letter that has been imported as an object.

Imported Graphics. Letters that have been scanned from hard copy or created in a graphics application and saved in the TIFF or EPS format can be imported into any page-layout program and positioned as independent graphic elements. FrameMaker, PageMaker, and QuarkXPress let you place an imported graphic at any insertion point in a text block and anchor it so that it flows with the text when it moves — an especially useful feature for initial caps.

Native Graphics. There are three easy ways to use your page-layout program itself to produce initial caps that function as independent graphics:

• **Boxed caps.** Use the rectangle or ellipse tool to draw a box or circle, position it in the text block, and specify that text run around it (each layout program uses a different method for text wrapping). Fill the box with a color, pattern, or screen if you want that effect, or specify no line or fill so that the box exists only to force the needed text wrap. Then place a separate type block containing the initial cap into the box (see Figure 7).

• **Scrapbook type.** In PageMaker, to convert a typed letter into a graphic element, select the letter with the pointer tool (not the text tool) and copy and paste it into the Scrapbook. Then use the Place command to open the Scrapbook file in the System Folder, and place the letter back into PageMaker, where it will now appear as a graphic element. You can use it to create a text wrap, and you can also scale or distort it simply by dragging its handles (see Figure 8).

• **Drawing with page-layout tools.** Use the rectangle, ellipse, line, and polygon tools in QuarkXPress, FrameMaker, Publish It! Easy, and Ready,Set,Go! (PageMaker and Personal Press lack a polygon tool) to draw original letterforms or to modify existing ones. It's easy to create bold, slab-style letters or other fanciful shapes by combining and overlapping shapes and fills (see Figure 9).

Any coward can fight a battle when he's sure of winning, but give me the man who has pluck to fight when he's sure of losing. That's my way, sir; and there are many victories worse than a defeat.
— George Eliot

Figure 4: Hanging type is a dramatic yet simple effect. To create this hanging raised cap in Adobe Cheltenham, we selected the first letter, increased its point size, and then indented the second and subsequent text lines to match the position of the first letter after the raised cap. Tip: Don't use tabs, as the text won't rewrap correctly if you make changes to the text.

EVERY HUMAN BEING HAS, LIKE SOCRATES, AN ATTENDANT SPIRIT; AND WISE ARE THEY WHO OBEY ITS SIGNALS. IF IT DOES NOT ALWAYS TELL US WHAT TO DO, IT ALWAYS CAUTIONS US WHAT NOT TO DO.
—LYDIA M. CHILD

Figure 5: To create a hanging drop cap in QuarkXPress, use the Drop Cap controls (choose Paragraph Formats on the Item menu) to create the cap and then enter the hidden character Indent Here (Command-\) before the second character in the paragraph. In PageMaker and other programs, position the initial cap as a separate text block alongside the body text. You'll have to eyeball the alignment, however, which is often easier than it sounds. We used a cap in Emigre Lunatix Bold with body text in Adobe Lydian.

Capital Sources

Sources for initial caps abound, from existing PostScript type collections to ready-made clip art to customized fonts and individually drawn letters.

PostScript Type. Unaltered PostScript type, selected from popular font foundries such as Adobe, Agfa, Bitstream, and

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Reputation is a bubble which a man bursts when he tries to blow it for himself.
—Emma Carleton

Figure 6: Use the text-runaround feature, common to most layout programs, to wrap body text along the ins and outs of a curving initial cap. For this *R*, we converted Agfa's Raphael font to PostScript outlines with FreeHand's Convert to Paths command. We filled in the shapes with linear gradations between tints of gold and drew a gold base below the letter in FreeHand and then exported it to PageMaker. With text wrap on, we adjusted the control points to fit the contours of the letter.

Monotype is the most immediate source for initial caps. Get familiar with companies, such as Emigre, Letraset, Treacyfaces, and Font Bureau, that specialize in unusual display faces. Simply increase the point size to create the initial cap and experiment with different colors, weights, and positions.

PostScript type with special effects — patterned or graduated fills, photo-image fills, or stroke and fill in different colors — can be created in PostScript illustration programs such as Adobe Illustrator and Aldus FreeHand or in type-editing programs such as Brøderbund's TypeStyler, Letraset's LetraStudio, and Adobe's SmartArt. Save these letters as TIFF or EPS files and import them into a page-layout program (see Figure 10).

Clip Art. If you have access to a scanner, hard-copy clip art, available from art-supply stores and bookstores, is a good source for unusual typefaces and designs. Dover Publications' inexpensive, copyright-free Pictorial Archive series offers especially beautiful initial caps, alphabets, and ornaments.

If you choose to scan hard-copy clip art, remember these tips:

- To avoid visible stair-stepped edges on scanned art, be sure to blow up your original art to full-page size (using a stat camera or a photocopier) and then scan the enlarged art at a relatively high resolution (150 to 300 dpi) and save the image as a 1-bit (line art) TIFF. Alternatively, for bold, less complex images, auto-trace them in Adobe Streamline or convert them to outlines with an illustration program.
- Some complex images with many fine lines, such as ornate Victorian alphabets, may be better used as high-resolution TIFFs, because they'll retain more detail than they would if traced. When they've been placed in your page layout and reduced to the desired size, jagged edges are less apparent.
- If scanning your own clip art doesn't appeal to you, you can obtain electronic clip art in paint and PostScript formats from a variety of sources. Initial Caps, from Spirit Vision (2852 Willamette Street, Suite 171, Eugene, OR 97405; 503-343-8100), for example, provides a collection of EPS letterforms and "tiles" (decorative rectangular borders that serve as frames for initial caps) along with instructions for using them in PageMaker, FreeHand, and Illustrator. This set offers a wide variety of caps and classic tiles arranged according to style — embossed, art deco, engraved, riveted — to provide pairs that work well together and separately (see Figure 11).

Custom Type. Although programs such as LetraStudio and Altsys Fontographer let you make custom PostScript fonts — an entire alphabet for a long project or single letters for one-time use — you don't have to be a professional type designer to create your own initial caps.

For an elegant effect, try drawing shapes with a calligraphic pen on paper and then scan and auto-trace them to produce PostScript outlines (see Figure 12). You can also use the calligraphy-pen tool in such programs as Fractal Design's Painter or Sketcher, or you can modify the brush shape of your favorite painting program. Better yet, try using a pressure-sensitive graphics tablet and stylus with FreeHand 3.1 or Fontographer 3.5 (the latter sports a variety of calligraphy-pen nibs).

You can use a PostScript illustration program to convert fonts to PostScript outlines and then use the application's tools to distort them or add flourishes — swashes on a letter *R*, for example (see Figure 6). Or use an image-editing program such as Adobe Photoshop or Fractal Design's ColorStudio to create or edit a graphic image and paste it into a

Sometimes I'm in Washington, then in Pennsylvania, Arizona, Texas, Alabama, Colorado, Minnesota. My address is like my shoes. It travels with me. I abide where there is a fight against wrong. —Mother Jones

Figure 7: Type plus geometric shapes is a striking — and easy to create — combination. We positioned this large red *S* in Adobe Frutiger Ultra Black inside a black rectangle, which was specified to repel the Times body type around it. To keep the letter firmly within the box, we set the *S* with negative leading, about half the point size of the letter.



Figure 8: A letter *Q* set in Adobe Bodoni was selected with the pointer tool in PageMaker; copied and pasted into the Scrapbook; and then brought back into PageMaker by use of the Place command, which converts the type block to a graphic element. Dragging the handles distorts the letter vertically and horizontally.



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Figure 9: Take advantage of your layout program's built-in drawing tools to create bold, upbeat custom letterforms for use as initial caps. From top: The *W* is simply an array of triangles, the *B* comprises two overlapping ellipses that have been cut off by a box and overlaid with triangles, the *F* is a puzzle of boxes, and the *S* has been festooned with two circles.



Figure 10: Remember that initial caps are graphic elements. We used SmartArt IV, a DA from Adobe, to apply a Serape text effect to this Adobe Helvetica Black *S*. Broderbund's TypeStyler is a natural for applying a zoom effect (style #24) to this *C* set in Agfa Nashville Extra Bold.

letterform. PostScript type outlines are supported by both programs and can provide automatic anti-aliasing of letters, which minimizes jaggies by introducing intermediate colors at the edges. You can also import a TIFF image into a PostScript illustration program and mask it into a PostScript type outline.

For a different perspective, try 3-D. Pixar's Typestry and Strata's StrataType 3d enable you to transform ordinary type into a 3-D marvel. You can apply surface textures to make letters look like they're made of raised marble or carved into wood. An easy way to incorporate 3-D into your publication is to use Macromedia's SwivelArt, which is a package of 3-D clip art produced with Swivel 3D. The package includes 3-D letters in serif, sans serif, and script faces that can be used as initial caps.

Initialize Your Layout

Although there are no hard-and-fast rules about how to use initial caps, keep in mind these handy tips:

• In graphic design, initial caps are often used two or three times on a page to head up paragraphs and to provide visual breaks. When two or three caps are placed on a single page of columnar text, don't line them up horizontally — position them so that they divide the columns into uneven segments.

• Setting the first few following words in all caps or small caps helps ease the reader from the initial cap into the body text.

• Although initial caps are commonly placed in the left margin, it's often effective to position an initial cap in the middle of a text column, for example, for a symmetrical effect with centered titles and folios.

• And whatever you do, don't let the initial caps you've chosen spell out questionable words. Because these large letters pop out at readers, you don't want them distracted by S, H, I . . . — you get the picture.

Whatever approach you choose, you can add plenty of excitement to your desktop-published documents with a minimum investment of money and time. But first you have to think big — big letters, that is.

As coauthor of *The Verbum Book of PostScript Illustration* and as a contributing editor to *Step-by-Step Electronic Design*, Janet Ashford fiddles with type and graphics. She also plays the violin.

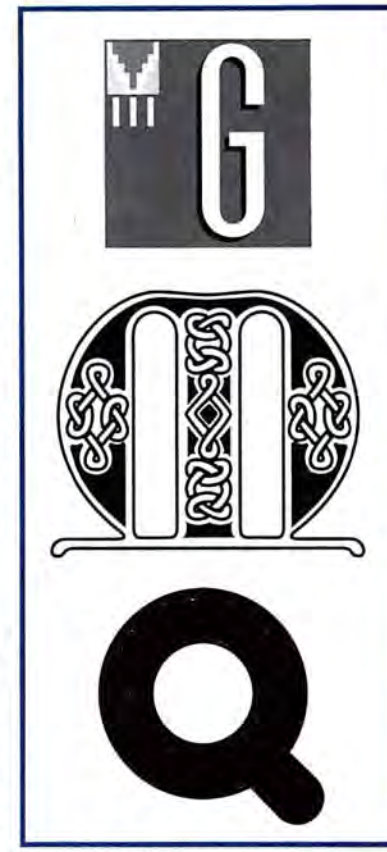
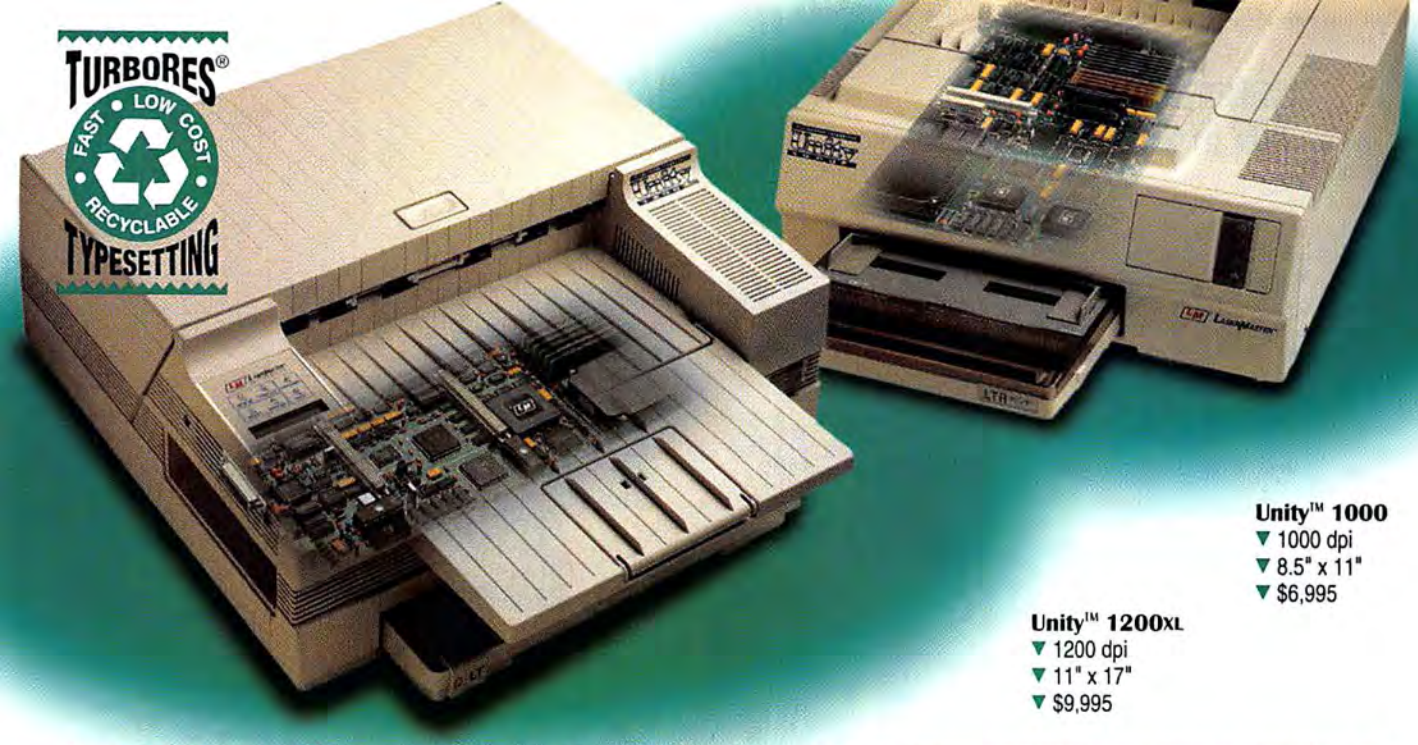


Figure 11: Clip art, such as Spirit Vision's Initial Caps collection, is a rich source of fancy letters. Here we combined an embossed tile and letter *G* to create a custom cap. The Celtic *M* and cylindrical *Q* (items M#1 and Q#3, respectively, in the set) show the wide variety available.



Figure 12: Calligraphic letters add an elegant hand-drawn look. This *M* from *Calligraphic Alphabets*, by Arthur Baker (Mineola, New York: Dover Publications, 1974), was scanned as a 300-dpi TIFF and then auto-traced in Streamline. Draw your own with graphic tablets and applications that support pressure-sensitive tools.

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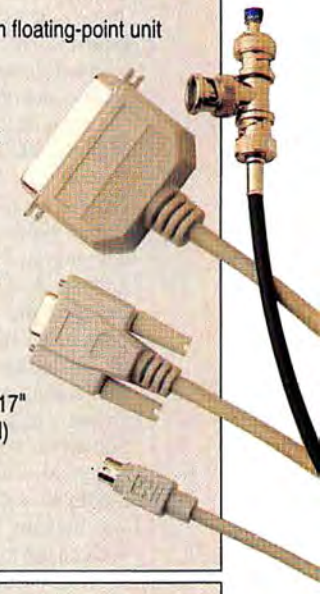
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Adding Color Textures

Designer Glenn Mitsui uses Photoshop's filters and color-editing features to add texture and color to a line-art scan.

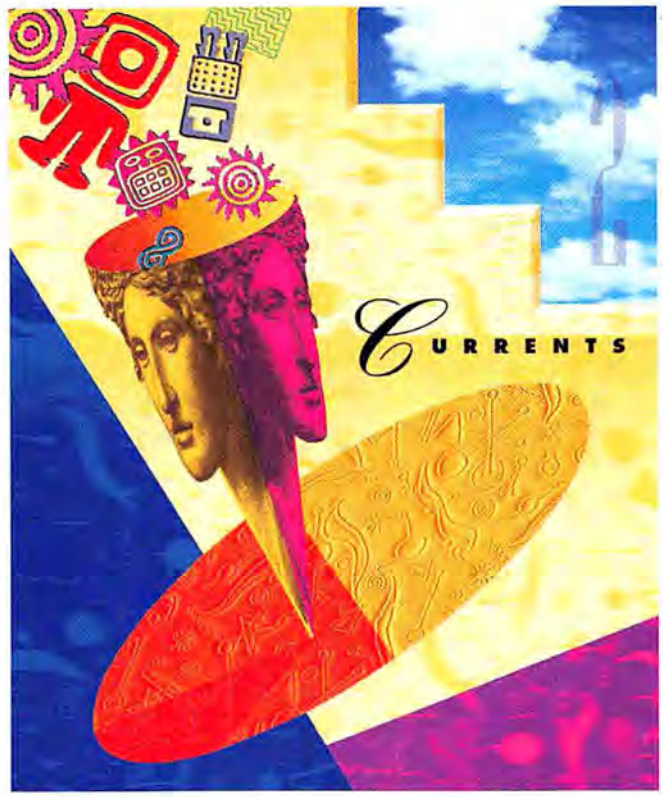
By Janet Ashford

Filters, available in most painting and image-editing programs, are designed for quickly applying visual effects to all or part of an image. Such filters as Add Noise, Blur, Sharpen, and Trace Edges can improve the quality of conventional scanned photos or lend a more artistic look to photos or art.

Glenn Mitsui, of Studio MD, in Seattle, used Adobe Photoshop's High Pass and Emboss filters to transform a simple black-and-white line drawing into a rich, pillowy gray-scale texture. He then changed the texture into a color image by converting the file to Indexed Color mode and editing the color table. Other programs, such as SuperMac's PixelPaint Professional, Electronic Arts' Studio/32, and Time Art's Oasis, include Emboss filters you can use to achieve a similar effect, although they lack the High Pass filter. Fractal Design's ColorStudio, on the other hand, offers a Highpass filter, and you can import Photoshop's Emboss filter.

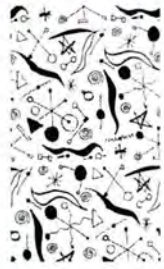
Mitsui's texture was used in a flier designed for the AIGA (American Institute of Graphic Arts) Seattle 1991 Currents conference on electronic design.

Graphic designer Janet Ashford is a contributing editor to *Step-by-Step Electronic Design*.



Perspiration and inspiration are the ingredients of good design and as such served as the theme of the AIGA Seattle 1991 Currents conference on electronic design. Glenn Mitsui used Photoshop to create a conference image that shows ideas (represented by scans of Aztec hieroglyphics) falling into a two-headed cone. The cone balances on an oval filled with a raised texture, created with the High Pass and Emboss filters.

1 Creating the Line Art



Mitsui scans a black-and-white texture drawing taken from a Japanese book of copyright-free designs at 300 dpi and saves it in Gray Scale mode. Increasing the brightness and the contrast removes the gray tones.

2 Applying the High Pass Filter



Mitsui applies the High Pass filter at its default value of 10 pixels. The filter retains areas of sharp color transition while suppressing color in the rest of an image. It results in a pillowy texture.

3 Adjusting Brightness and Contrast



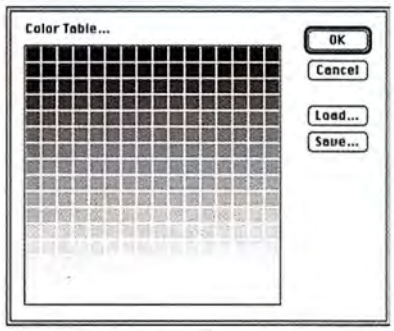
After applying the High Pass filter, Mitsui goes to the Image menu to adjust brightness and contrast, increasing the brightness to 10 and the contrast to 67 to exaggerate the pillowy effect.

4 Applying the Emboss Filter



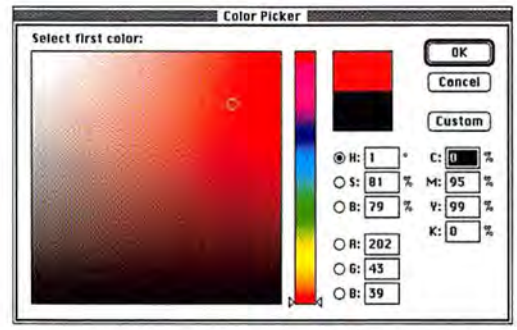
The Emboss filter works by suppressing the overall color and tracing the pattern edges with black. Here Mitsui retains its angle default of 135 degrees, raises the height to 4 pixels, and leaves the amount at 100 percent.

5 Converting Gray Scale to Color



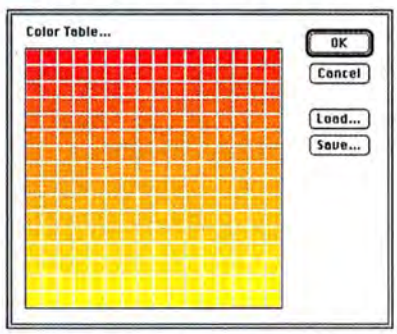
To change the doodle texture from gray scale to color, Mitsui converts the image from Gray Scale to Indexed Color, via the Mode menu. He then chooses Edit Table from Color Table, also on the Mode menu.

6 Editing the Color Table



Dragging from the first color (upper left) to the last (lower right) selects all the colors in the table and brings up the Color Picker dialog box. Mitsui defines color values for the "first" color in the new color table. A second Color Picker dialog box appears and asks for a second color.

7 Viewing the New Color Table



The edited color table now shows 256 colors, ranging from red to yellow. These new color values are applied to the image in place of the gray tones in the original.

8 Applying the Color Table



Clicking on OK in the Color Table dialog box applies the edited color table to the image. The light areas in the image are now colored yellow, and the darker edges are rendered in shades of red. Once again Mitsui adjusts the brightness and the contrast to produce the finished texture.

9 Pasting into an Oval



Mitsui pastes the color texture into an oval shape (left). Then with the oval still selected, he holds down the Option and Command keys and uses the lasso tool to select the right half of the oval, drawing a straight line through the center of the oval and continuing point by point to roughly select the right half. Holding down the Command key subtracts the new selection from the oval, leaving just the left half active (right). He uses the Hue/Saturation controls to change the colors in the selected area from orange shades to a redder palette. He then rotates the oval slightly and copies and pastes it into the composite image. Using the lasso tool, Mitsui selects and darkens a triangular shadow.

10 Creating Blurred Textures



To provide a subtly textured backdrop for the final image, Mitsui uses the original line art, shown in Figure 1, first applying Photoshop's Motion Blur filter and then editing the color table three times to create three palettes of blue, purple, and yellow.



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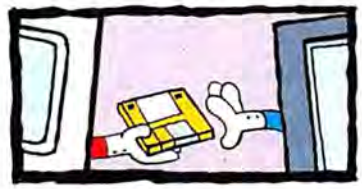
The PowerBook may be the next thing, but getting your NeXT to do the Mac thing isn't always the easiest thing. NeXTstep 3.0, the latest release of the NeXT system software, should help; it includes AppleShare client software, support for printing to AppleTalk-connected PostScript printers, and the ability to read Mac-formatted 1.4-megabyte floppy disks.

By Henry Bortman



Picture this: If you missed the Picture Phone exhibit at the 1964 New York World's Fair, don't despair. ShareVision (408-428-0330) has developed a way to use your NuBus Mac to do Ma Bell one better. ShareView Plus ($3,999) consists of a pair of NuBus cards; a video camera; a telephone receiver; a Norris EarPhone; and accompanying software that lets you send data, voice, fax, and video as well as share documents over standard telephone lines. One card does the video/voice/data/fax sending and shares documents, and the other captures and compresses live video. The Norris EarPhone is an earphone/microphone combination that fits entirely into your ear; the microphone picks up your **eardrum vibrations** when you talk. The document-sharing hardware and software — so two people can work on the same document at once — supports several of the most popular Mac applications, including Excel, Word, and MacDraw. A scaled-down version of the package, ShareView ($999), does everything but the video.

Talking Silicon: Silicon Graphics, that is. Now that SGI has licensed Apple's QuickTime, you may get **that urge to share files** between Macs and SGI's lightning-fast IRIS workstations — some of which cost less than Quadras. If so, check out Xinet's K-AShare ($595 for two users), an AppleShare-compatible file server now available for SGI's UNIX-based machines. Xinet (510-845-0555) also offers K-Spool ($895), a PostScript print spooler for SGI computers.



Ethernet's bottom line: FOCUS, Inc. (617-938-8088) has dropped the bottom out of the Ethernet-card price scale with its EtherLAN line. The **rock-bottom prices** start as low as $139.99 for the LC card (with a single thinnet or 10BASE-T connector) and top out at $189.99 for the SE, SE/30, and IIsi cards (each includes thicknet, thinnet, and 10BASE-T connectors). Cards with built-in FPUs (for the LC) cost $40 to $60 more. FOCUS also offers external Ethernet SCSI adapters for around $250; Sonic Systems makes the boards, and FOCUS sells them, adding its own lifetime warranty.

Background transfers: Telecommunications programs aren't known for graceful background file transfers. As your foreground work gets intense, your modem connection dies. MacIntercomm ($199.95), from Mercury Systems (310-553-0881), has a multitasking scheme to **prevent such tragedies.** Other features include full scripting capability and "smart dial" — MacIntercomm remembers area codes and adjusts the numbers it dials accordingly.



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Up-to-Date in Network City

Asset managers now provide more ways to stay up-to-date on — and update — your network's collection of Macs and software.

By John Rizzo



It's time to update ourselves on asset managers. Since we last looked at these network-based hardware- and software-inventory programs (see "Maximum Mac Management," October '91, page 183), their numbers and features have both increased. But their basic function hasn't changed: They go out over a network and obtain lists of current applications, application versions, disk drives, add-in cards, and other hardware connected to Macs on a network — vital information for troubleshooting and accounting. However, one of these programs' newer functions can be even more important than data gathering: installing Mac software over the network. This feature relieves you of the task of going from machine to machine and updating software manually.

We looked at all the major players in the asset-management field. The original asset manager, Status•Mac, is now sold by ON Technology and is up to version 3.0. Another veteran, GraceLAN, from TechWorks, is now represented by three separate applications: the original GraceLAN Network Manager 2.0; the GraceLAN Asset Manager 1.01 database program; and GraceLAN Update Manager 1.1, a stand-alone software updater (we looked at a bundle of all three). CSG's Network SuperVisor 2.1 has been completely rewritten and contains lots of new features, some of which are also offered as spin-off products. We also evaluated MacVONK's NetOctopus 1.1, a relative newcomer that has high-end features, and Sonic System's Radar 2.0, an elegant low-cost asset manager. In addition, we looked at Trik's NetDistributor Pro, a powerful software-updating package that can be used with several of the asset managers.

Bringing Home the Data

Each of these programs gathers data via a responder, a system-extension file you install on each networked Mac you want to probe. With the responder file installed, you can play call-and-response to collect a variety of useful information from users' Macs (see Figure 1), including names and versions of applications and System files (and data files, in some cases), fonts, lists of hard drives and their SCSI-ID numbers, and serial numbers of NuBus cards. With some of the programs, you can also get information about the Macs' networking setup — for instance, NetOctopus can report Ethernet-node hardware addresses, and Status•Mac can report the TCP/IP network node address on Macs with MacTCP installed. Status•Mac can also report damage to applications and System files.

All these programs profile users' Macs in the background, but they still slow down foreground tasks to some degree. Although most of the programs let users prevent administrators from doing anything on their Macs (see the "Managing or Meddling?" sidebar), Status•Mac provides a better solution to the work-disruption problem: It sends a request for a profile to the user in the form of a dialog

box. The user can either go ahead with the profile or delay it, in which case Status•Mac sends another request later. If the user isn't at the computer, the profile will proceed after an administrator-definable interval.

Whereas Status•Mac differentiates itself from the pack by its unobtrusive data gathering, other programs are distinguished by the types of data they let you gather and the method of retrieval.

GraceLAN Network Manager is the only one of these products that lets you collect information from PCs, including the version of DOS installed, the amount of memory, and the number of hard drives. The DOS machines being probed must use GraceLAN's TSR (terminate and stay resident) file, the equivalent of a Mac system extension. They also have to be running AppleTalk software, such as Farallon's PhoneNET Talk; the network interface can be either LocalTalk or Ethernet. GraceLAN also reports on printers, routers, and other network devices.

The 2.1 rewrite of Network SuperVisor can gather data on almost anything residing on an AppleTalk network, including servers, routers, and gateways. The data-gathering portion is no longer based on ACIUS' 4th Dimension, although the database portion remains 4D-based.

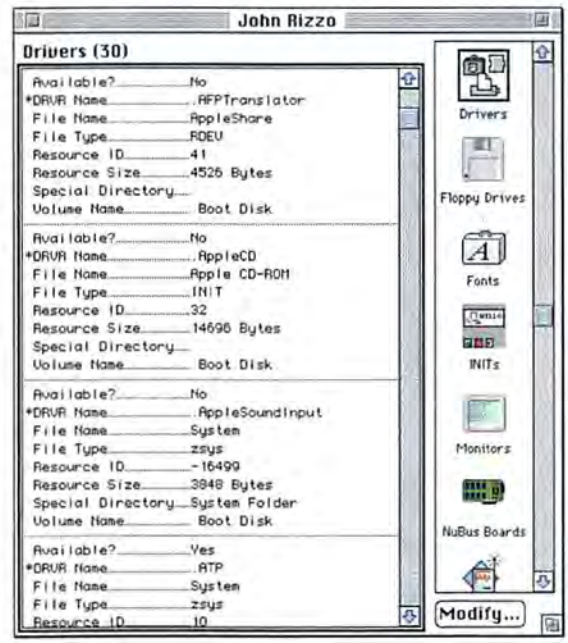


Figure 1: Asset managers such as Status•Mac let you collect a wide variety of information about the software and hardware configuration of Macs on a network — so you don't have to trudge from machine to machine.

Radar 2.0 is notable for its printer-data capabilities: In addition to being able to read just about every fact about a printer, Radar lets you rename printers and download fonts.

NetOctopus 1.1 lets administrators react to the gathered data by changing a variety of parameters on users' Macs, including Macintosh and owner name (called Chooser Name in System 6) and PRAM settings such as mouse speed and

Managing or Meddling?

Sometimes there's a fine line between managing a network's software and hardware and intruding on users' privacy or hindering their work.

There are few arguments against allowing network managers to see applications on users' Macs; using asset managers is a good way to keep track of the legal and illegal copies of software. Data files, however — whose names NetOctopus, Radar, and NetDistributor Pro allow network administrators to see — are a different story. Many Mac users have something on their hard disk they'd rather not have others know about, such as résumés, data on confidential projects, or files on employee performance and salaries. Although the name of a data file may not reveal much, it could theoretically provide incentive for an unscrupulous network manager to try to access the file, perhaps by copying it via ARA.

Moving software onto users' disks, which all these products can do, can also be intrusive or even dangerous. If something goes wrong, a user who isn't aware of what was done can waste a lot of time trying to figure out what's going on. The flip side of this debate is the need for network administrators and help-desk attendants to do their job. Their job may, for instance, involve replacing preferences files, and to do so, they need to be able to view text files. At sites with large networks, network personnel are often responsible for hundreds of Macs, which can take weeks or months to update manually.

All the packages discussed in this article offer users some means of restricting access to their Mac. GraceLAN Network Manager has a control panel that lets users select what network managers can see and do (from viewing only some information to viewing system information and making changes). The other programs vary in the degree of access they give network administrators. NetOctopus lets administrators view names of data files, but it also lets users designate a single folder to be hidden from the administrator's view. However, only files at the root level of this secret folder are hidden; files inside folders in this secret folder can be seen. For users concerned about intrusive software updating, GraceLAN Update Manager and Status•Mac alert users with a message when an upgrade package arrives, giving them the choice of installing or not installing. If the user chooses not to install, another window comes up offering times for rescheduling the installation.

Should network managers' tools be able to override users' control settings? All the packages except Status•Mac are based on the assumption that they should; each provides some method of depriving users of the right to block profiles and updates. Radar can even keep users out of their own control panels with password protection. Other programs have two versions of the responder extension: one that lets users block administrator access and one that doesn't. In any of these cases, however, users can still exercise the ultimate control choice — deleting the responder extension from their hard disk. For System 7 users, NetOctopus gives administrators an answer to this situation: It can make the responder file invisible (invisible extensions can't be installed on System 6 Macs).

The question of privacy has no absolute answer; it's an issue that both management and network personnel need to consider before purchasing and installing this type of package.



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speaker volume. It also allows multiple administrators to gather this data, with passwords and varying levels of privileges for different administrators.

Gathering data with NetOctopus is not quite as intuitive as with the other products — for example, you can't always double-click on a node listing to bring up information about the node, different windows have different means of bringing in data, and you'll need to consult the manual to figure out what many of the tool buttons do (there's no Balloon Help). Fortunately, the manual is well written. MacVONK has fixed some of the deficiencies of the 1.0 version, and NetOctopus can now scan all the volumes that are attached to a Mac except CD-ROM drives or AFP-compatible network volumes. However, we did experience some bugs with NetOctopus, including one that caused a system crash.

The Database Race

Gathering useful data is important, but you also need a place to put it and a way to work with it. With the exception of Radar, all the programs reviewed here oblige in this regard. Status•Mac, NetOctopus, and Network SuperVisor have built-in databases, and GraceLAN Network Manager can automatically export data to GraceLAN Asset Manager, a stand-alone database program designed for managing desktop-computer assets.

Status•Mac's database program is well organized and a good performer. Status•Mac uses store-and-forward profiles to collect information — if a Mac to be profiled is turned off, a profile request will automatically be sent to that Mac when it is next turned on. This feature, together with the ability to automatically set regularly scheduled profiles, lets you keep Status•Mac's database current. Another feature lets you view collected data in chart form.

Gathering useful data is important, but you also need a place to put it and a way to work with it.

GraceLAN Asset Manager and the database portion of Network SuperVisor are both designed to keep track of data outside the realm of inventory-control programs — for example, user phone numbers and addresses or cost-accounting data for hardware and software. Both packages have good querying and navigation tools. The GraceLAN database program

Figure 2: Asset Managers' Cost per User

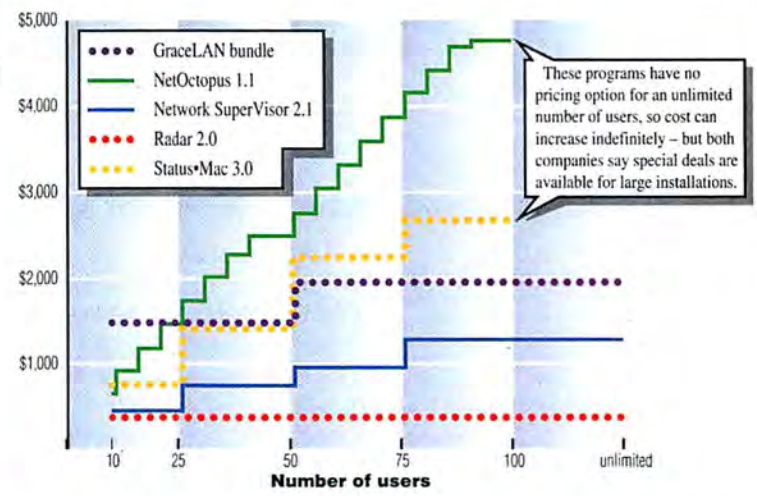


Figure 2: The cost of an asset manager generally goes up with the number of users. Radar's the exception — it sells for a flat rate for any number of users, but its capabilities are limited. The prices shown for GraceLAN are for the Network Manager/Asset Manager/Update Manager bundle.



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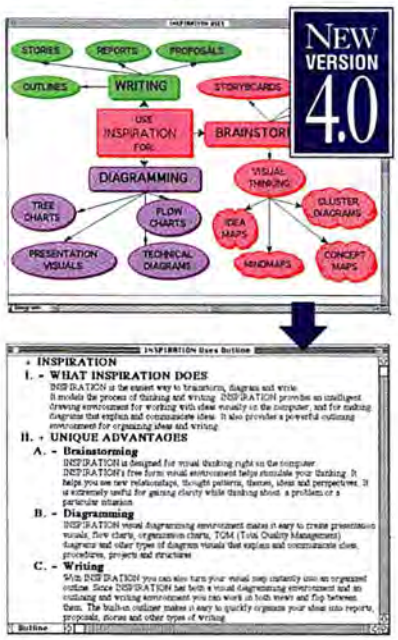
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NETWORK MANAGEMENT

is faster than the one in Network SuperVisor, but the latter has greatly improved in this version. CSG also offers the 4D Developers' Kit to help you customize your Network SuperVisor database. Although Network SuperVisor and GraceLAN Asset Manager are based on 4th Dimension, you don't need it to run either program.

The ability to install software on multiple Macs over a network is rapidly becoming a popular feature among asset-manager programs.

NetOctopus has a robust database program that MacVONK claims was designed to hold information for hundreds or thousands of users. Like Status•Mac's, NetOctopus' database program is well integrated with the data-collection part of the program.

To help you avoid information overload, NetOctopus, Status•Mac, GraceLAN Asset Manager, and Network SuperVisor each let you design your own layouts, choosing the database fields you'd like to view. Some of the programs also supply premade templates or filters for viewing selected fields of information — for example, NetOctopus comes with 20 templates and Status•Mac includes almost 100, such as one that displays information on the prerequisite setup for upgrading to System 7.

Although Radar can export data to a spreadsheet program or a database program, this is not as convenient as having a built-in or add-on database program designed to work with the information-gathering software. Radar does, however, have filters in the form of its Report Generator, so you can view or print only the data you're interested in.

Updating User Software

The ability to install software on multiple Macs over a network is rapidly becoming a popular feature among these programs — not surprising, given the enormous amount of time required to update software manually, walking from Mac to Mac. Status•Mac, NetOctopus, Radar, and Network SuperVisor all employ this feature, to varying degrees, and stand-alone updater packages, such as GraceLAN Update Manager and NetDistributor Pro, are also available. Network SuperVisor can send a file to one or more users, but it lacks the other programs' more powerful updating features,

On the Horizon

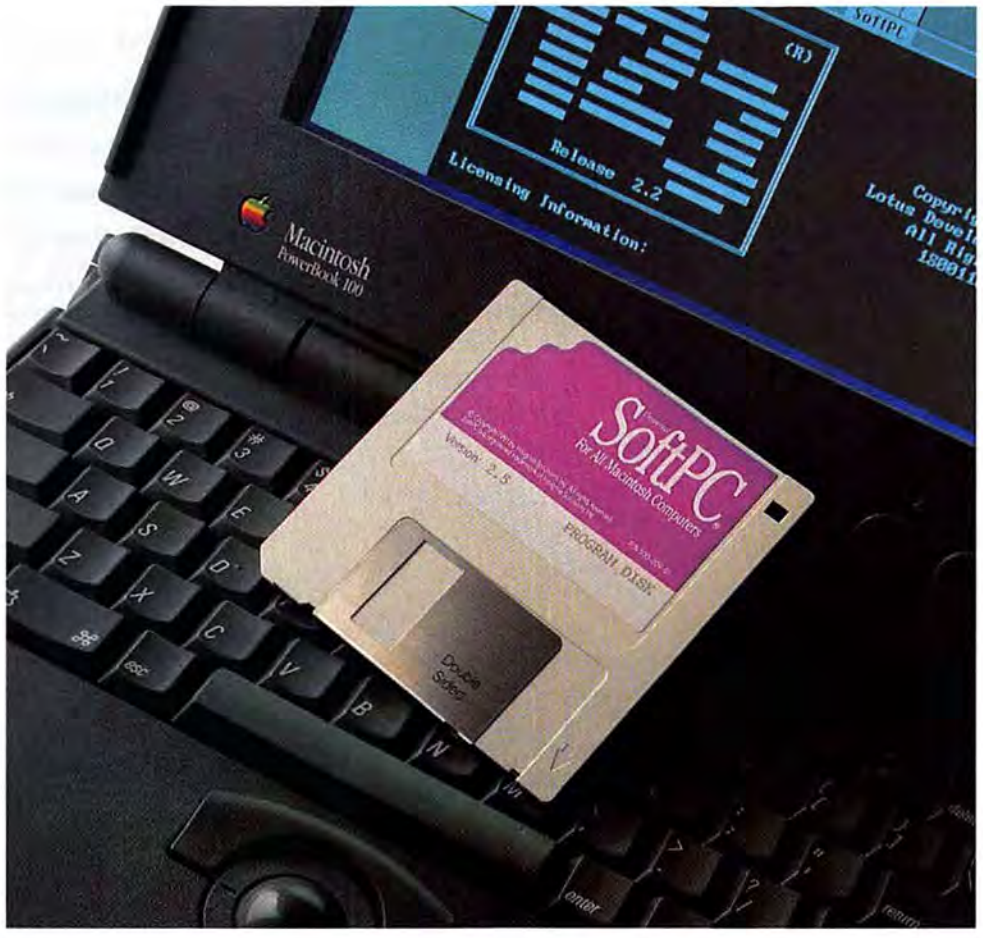
Apple recently jumped into the software-update ring with Likewise, a low-end package aimed at the education market. Likewise, which shipped too late for inclusion in this article, is a simpler program than NetDistributor Pro or GraceLAN Update Manager — but it sells for less than half the price ($129 for an unlimited number of clients).

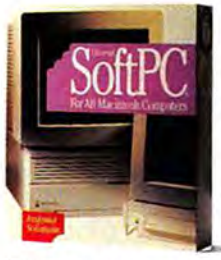
Unlike the updaters reviewed in the main story, which all use system extensions on users' machines, Likewise requires that an application called Client be run on users' machines. For features that go beyond letting an administrator download a single folder to multiple users, the user's Mac must also be booted with a special Client floppy disk. On Macs booted with the Client disk, administrators can replace the System Folder (but not replace the files within it or run Installer scripts), synchronize clocks, set user names, and set color depth to monochrome or to the maximum number of available grays or colors.

At press time, Trik was working on new technology, code-named Mercury, which will probably be available by the time you read this, both as a stand-alone product and as a feature built in to NetDistributor Pro. It will give network administrators impressive support for running Apple's Installer scripts for multiple users over a network. For example, it will be the first network product for upgrading Macs from System 6 to System 7.

TechWorks' separate-but-equal approach to asset databases may soon be augmented by a built-in database-program option. TechWorks is preparing a revision to GraceLAN Network Manager that will let administrators store and manipulate the information they collect over the network — with no adverse effects on Network Manager's performance, according to TechWorks. This version is not expected before 1993.

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so you may want to buy it with a stand-alone updater (it's bundled inexpensively with NetDistributor Pro).

Most of the software updaters allow you to build update packages, sets of files that include one or more pieces of software to be installed on a user's disk. You can choose whether you want them installed automatically over the network or only when users double-click on the self-installing file.

Like its profiles, Status•Mac's update packages are store-and-forward, so the Mac you want to update doesn't have to be on-line when you set up the package. Status•Mac can build update packages for installation in a specific location, but it's not as versatile as GraceLAN Update Manager, NetDistributor Pro, or NetOctopus.

NetDistributor Pro and GraceLAN Update Manager can each update files that are "busy" — a helpful feature if your users never seem to go home. Each application moves the busy files to a temporary folder and periodically checks on them; when they're no longer busy, they are replaced. Administrators can save the files and folders that are being replaced, by moving or renaming them. GraceLAN Update Manager also has a feature called Install Watcher, which records the administrator's action and duplicates it on other machines — for example, running installer programs from Apple or third parties. Another new feature, a background application called Update Trigger, lets you run GraceLAN Update Manager automatically at set times.

NetDistributor Pro has an icon-based scripting language you can use to place files on users' disks.

NetDistributor Pro and NetOctopus are the most aggressive updaters, allowing software deletion without advance warning for users and allowing replacement of software currently in use. NetDistributor Pro can install fonts and DAs, even under System 6. It also has an icon-based scripting language you can use to place files on a user's disk. Because the scripts allow failure branches, you can issue conditional instructions: For example, you can direct NetDistributor Pro to take an alternative action if it doesn't find the folder in which you want to install a file.

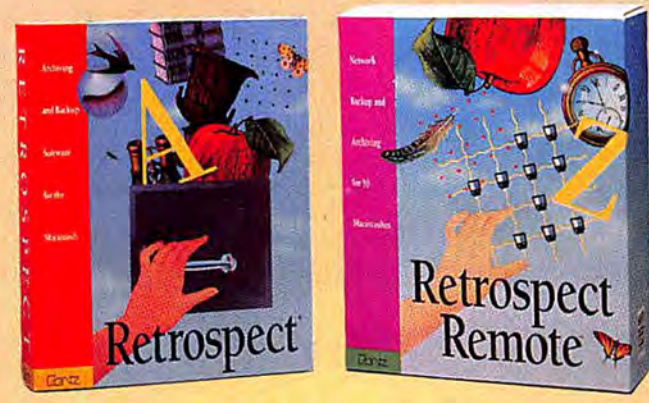
NetOctopus and Radar offer direct support for Apple Installer scripts. (With Radar, this is the only way to perform updates, and updates must be installed at bootup.) NetOctopus can automatically identify Macs that are running outdated System Folder files and run the upgrade. However, we were disappointed that NetOctopus reported error messages to the user's Mac rather than to the administrator's machine.

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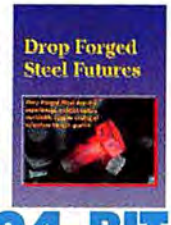
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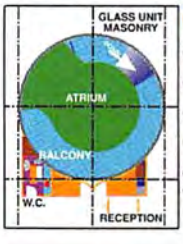
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Beyond Assets and Updating

Secondary features extend some of these packages beyond mere asset management and into the realm of true network management.

GraceLAN, Network SuperVisor, and Radar provide topological mapping, which produces a logical map of the nodes on the network. These maps present a picture of the types of machines in each zone and their users. The best implementation of this feature is Network SuperVisor's Topology Editor (see Figure 3), which adds a drawing environment to the network map. This feature lets you draw a floor plan around the logical map, so you can record the physical location of each Mac and printer on the network. (CSG also sells these topology-mapping functions as a separate product called SuperVisorTE.)

Perhaps more significant to network management are alarm features. Network SuperVisor lets you set the Alert tool to notify you (on the map or with pop-up dialog boxes) when network devices or services appear or disappear from the network; a log records these events as they occur. Radar also has built-in monitor and alarm functions, which notify you with a screen message when any network device or server goes down or when a printer jams, runs out of paper, or is missing a paper tray.

Mobile network administrators will be pleased to learn that NetOctopus has a built-in link to Apple's ARA (AppleTalk Remote Access). Although any of these programs can work with ARA, NetOctopus lets administrators make the remote network connection from within NetOctopus itself.

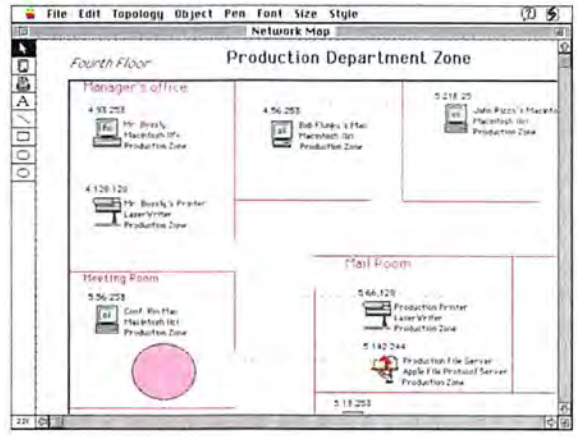


Figure 3: Topology editors don't just tell you what's on your network but they also show you a map. With Network SuperVisor, you get drawing tools as well, so you can make the map show the physical location of the Macs and printers in your office.

The Customers Always Write.

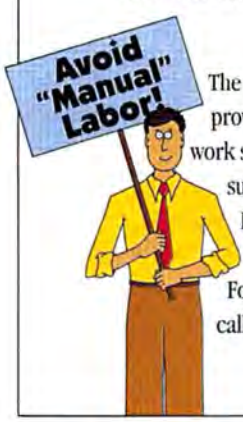
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The Bottom Line

All the products in this competitive field have improved, and new features are making each more powerful with every new version. Pricing varies, however, as Figure 2 shows. The best overall buy here is Network SuperVisor 2.1 (from $495 for 10 users to $1,295 for an unlimited number of users), from CSG Technologies. Network SuperVisor's database program is the most extensible for in-house data tasks. It also includes some useful network-management features and the best network mapping. Its software updater falls short of the competition, but CSG also sells NetPack Pro, a bundle of Network SuperVisor and Trik's Net-Distributor Pro, for a comparatively good price ($667.50 for 25 users, $892.50 for 50 users, $1,042.50 for 75 users, and $1,942.50 for any number of users).

Status•Mac 3.0 (from $749 for 10 users to $2,699 for 100), from ON Technology, is a good value for two or three dozen users, whereas the bundle of all three GraceLAN products (from $1,495 for 10 users to $1,995 for an unlimited number) is a better buy for more than 50 users. Each costs more than Network SuperVisor, even at these user levels, but

Table 1: Which Software Has the Best Assets?

● = yes ○ = no	GraceLAN bundle ♦♦♦♦	NetOctopus 1.1 ♦♦♦½	Network SuperVisor 2.1 ♦♦♦♦
List price	$1,495 – $1,995	$645 – $4,770	$495 – $1,295
Comments	Three separate applications. Good installer software. Good interface. Supports PCs.	Fast profiles. Most expensive. Most administrator control/ least user control.	Well-integrated features. Best mapping. Extensible database. Updater not included.
Asset-management features			
See data-file info	○	●	○
Change printer names	○*	○	○
Download printer fonts	○	○	○
See CD-ROM drives	○	○	●
PC profiles	●	○	○
Store and forward profiles	○	○	○
Database programs	● (Asset Manager)	●	●
Multiple-administrator security	workgroup passwords	several levels	several password types
Profiles by users	●	●†	●
User reschedule	○	○	●
Disable user control	●	●	●
Software updater	● (Update Manager)	●	● (send file)
Updater features			
Support for Apple Installer scripts	○	●	○
Create update packages	●	○§	○
Delete users' files	●	●	○
Rename users' files	●	●	○
Network-management features			
Network mapping	●	○	●
Drawing tools in map	○	NA	●
Statistical graphs	○	○	●
Network-monitoring alerts	○*	○	●
Company	TechWorks 4030 Braker Ln. W. Ste. 305 Austin, TX 78759 800-688-7466 512-794-8533	MacVONK 313 Iona Ave. Narberth, PA 19072 215-660-0606	CSG Technologies 530 William Penn Pl. Ste. 329, Box 131 Pittsburgh, PA 15219 412-471-7170

*Available separately in TechWorks' Net Utilities program.

†Because there is no limit on the number of administrators, users can act as administrators, with usage restricted to their own machine.

§It can install individual files and folders, however.

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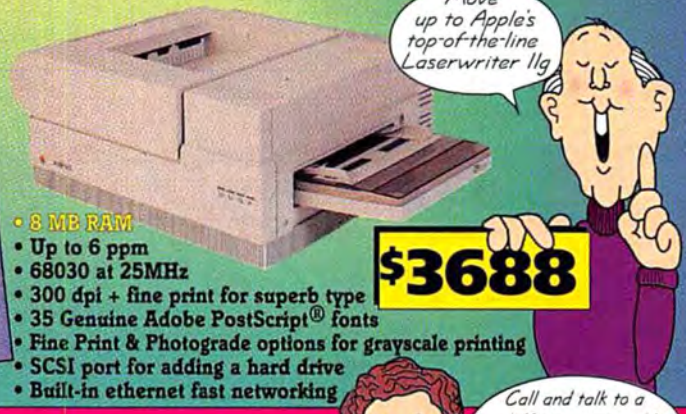
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they have updating features and the nicest interfaces of the bunch. In addition, GraceLAN is the only one of these products that collects information from PCs, and Status•Mac excels in its courtesy toward users — an important consideration, because users who don't like an asset manager sometimes remove the responder extension from their System file so their Macs can't be managed.

NetOctopus 1.1, the most costly package (from $645 for 10 users to $4,770 for 100), is best suited to large organizations, because it can make more changes on users' disks than any other single package can. However, being the newest package in the field, it still has some rough edges.

For those who aren't sure which features they'll need, Radar 2.0 is an economical starting choice. With its bargain price ($399 for any number of users), you can afford to switch to something else if your needs outpace it. Or you can expand it gradually, adding GraceLAN Asset Manager as a database program and GraceLAN Update Manager or NetDistributor Pro as an updater. For updating, NetDistributor Pro's unique scripting capabilities give it an edge over GraceLAN Update Manager's and NetOctopus' updating capabilities.

It's hard to go wrong with any of these asset-management products — they're all assets for keeping networks and network managers up-to-date.

John Rizzo is *MacUser*'s technical editor and author of *MacUser Guide to Connectivity*, from Ziff-Davis Press.

Table 1: Which Software Has the Best Assets?, continued





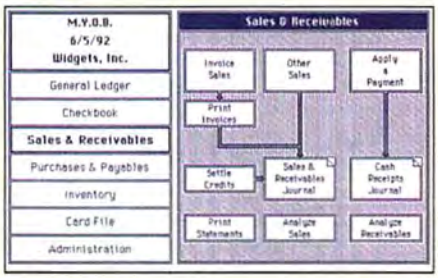


● = yes ○ = no	Radar 2.0 $3\frac{1}{2}$	Status•Mac 3.0 4	NetDistributor Pro◊ 4
List price	$399	$749 – $2,699	$695 for 100 users
Comments	Least expensive. Strong printer features. Scans at bootup. No database.	More than 100 profile templates. Good interface.	Updater only. Most-aggressive updating features. Good interface. Icon-based scripting.
Asset-management features			
See data-file info	●	○	NA
Change printer names	●	●	NA
Download printer fonts	●	○	NA
See CD-ROM drives	●	●	NA
PC profiles	●	○	NA
Store and forward profiles	○	●	NA
Database programs	○	●	NA
Multiple-administrator security	client-Mac password	administrator passwords	NA
Profiles by users	○	●	NA
User reschedule	○	●	NA
Disable user control	●	○	NA
Software updater	●	●	NA
Updater features			
Support for Apple Installer scripts	●	○	○
Create update packages	○	●	●
Delete users' files	○	only if replacing	●
Rename users' files	○	○	○
Network-management features			
Network mapping	●	○	NA
Drawing tools in map	○	NA	NA
Statistical graphs	○	●	NA
Network-monitoring alerts	●	○	NA
Company	Sonic Systems 333 W. El Camino Real Sunnyvale, CA 94087 408-736-1900	ON Technology 155 Second St. Cambridge, MA 02141 617-876-0900	Trik 400 W. Cummings Park Ste. 2350 Woburn, MA 01801 800-466-8745 617-933-8810

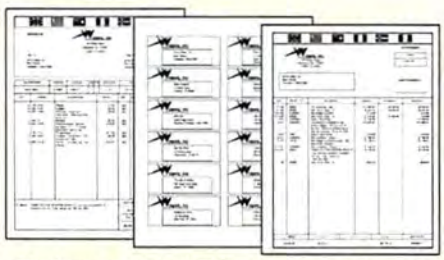
◊NetDistributer Pro is a stand-alone updater, not an asset manager.

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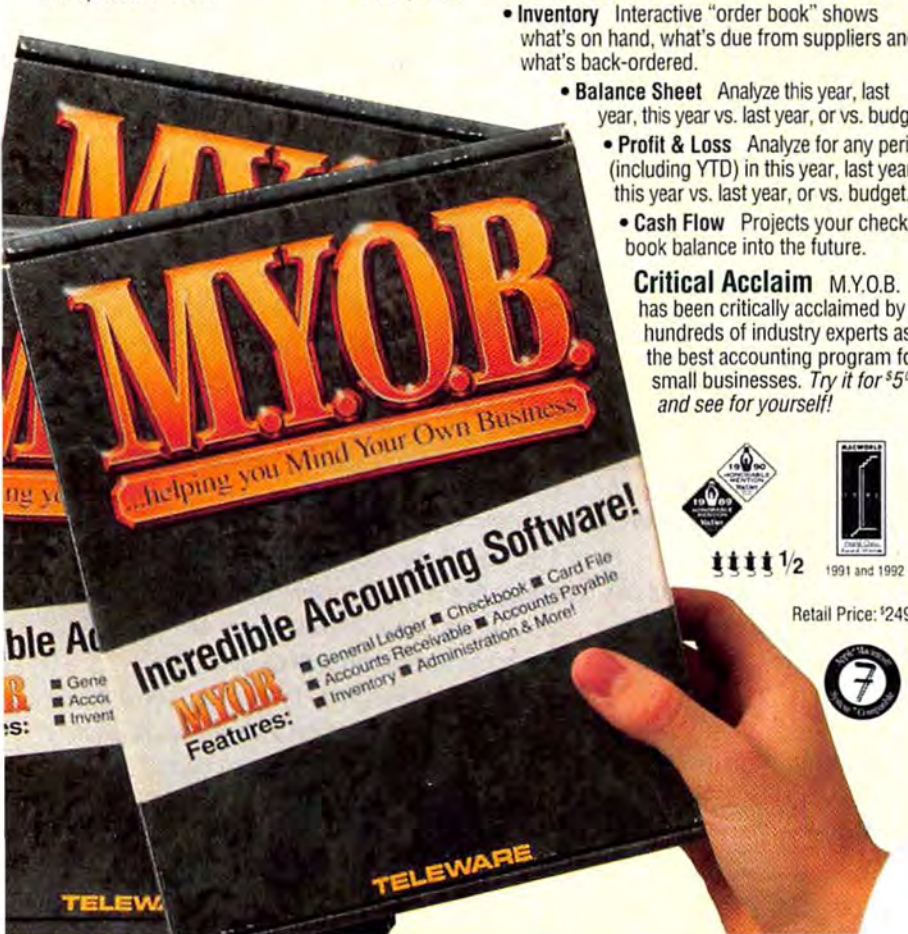
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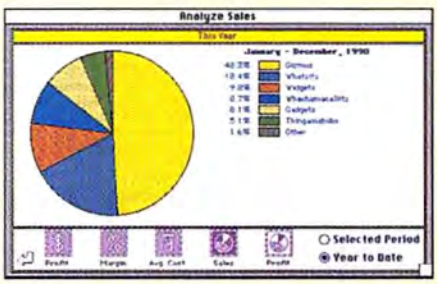


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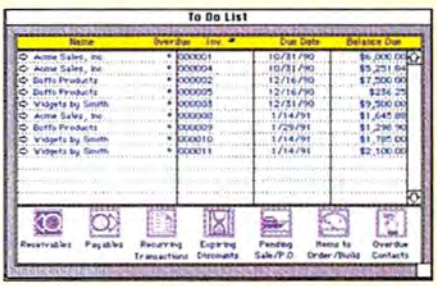
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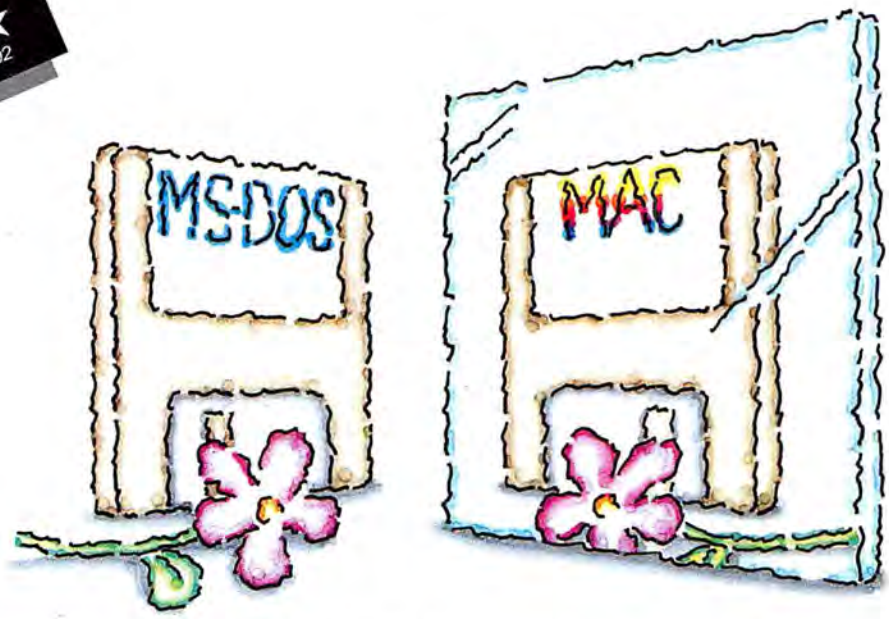
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Translation Tricks

File translation can be your best defense against one-app-fits-all peer pressure from the PC crowd.

By John Rizzo



PC peer pressure has been around a long time. Five or six years ago, the well-meaning calls to join the computing majority were along hardware lines: "A *mouse?* Give me a break. You should be using a *real* computer." Now that Microsoft pretends it invented File and Edit menus, the PC users in your office no longer laugh at your Mac — they try to make you give up applications that don't talk directly to theirs. Maybe they want you to give up your favorite word processor in favor of WritePerfectXyStar for Macintosh, because it can read files created with the PC version. Never mind that you'll need to learn a new program and give up invaluable features. Fortunately, there are other ways to share files with PC users. File-translation techniques, such as finding a standard format in common or using file-translation software, can be your best defense against the one-app-fits-all propagandists.

Why Mess with Translation?

In case you need more ammunition against the arguments of PC users who want you to switch to their applications (or the in-house support folks who like the idea of being experts on one word processor for both Macs and PCs), let's take a closer look at that rosy picture of "identical" applications on different platforms. In the real world, the Mac and Windows versions of programs usually differ in some features and interface details. For instance, WordPerfect 5.1 for Windows can create tables, but WordPerfect 2.0 for Macintosh can't. In fact, the best multiplatform implementations *don't* have identical interfaces but instead take advantage of each platform's strong points, which means that you can't necessarily translate all features or learn one version by learning the other.

In any case, when it comes to compatibility, it's not the application you use that's important, it's the file format. For instance, the officialdom here at *MacUser* has decreed that we must use Word 5. I can't stand Word 5. It may be the most powerful word processor ever developed by Western science, but its bloated feature set hogs memory and far exceeds anything I need. So I use Word 4 to do my writing, and then I use Word 5 to translate the files. Using file-translation techniques, I could write everything in XyWrite on a Dell 486, as long as I translated it into the file format my coworkers needed.

Do-It-Yourself Translation

Of the several strategies for translating files among Mac and PC applications, the one that may seem easiest at first glance is the do-it-yourself approach: using your word processor, spreadsheet program, or other application to save a file in a standard format that an application on the other platform can read.

ASCII text is the lowest-common-denominator format for interplatform communications, because it can be read by word-processing, spreadsheet, and database programs, but



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it conveys strictly a standard set of characters. You lose all the formatting information, such as boldface and italics, columns, and special characters. With a spreadsheet program, ASCII preserves only the cell data, stripping out the formulas. And for word processing, you should know that characters such as bullets, em dashes, and smart quotes can turn to gibberish on a PC, thanks to differences between DOS and the Mac operating system: The Mac OS defines all 256 ASCII characters, but DOS defines only 128 of them, leaving the rest (the "upper" ASCII characters) to be defined by each application.

Fortunately, you don't usually need to resort to ASCII as a common spreadsheet format, because most spreadsheet programs can read and write Lotus 1-2-3's WKS, WK1, and WK3 formats, which can save both text and formulas. Still, there are a few formulas that won't translate into these formats because they aren't supported by 1-2-3.

For text-based documents, the alternative to ASCII is Microsoft's RTF (Rich Text Format). Saving a file in RTF can help a program such as PageMaker read it, because PageMaker can translate some of the upper ASCII characters from RTF. Unfortunately, Microsoft changes its interchange standard with each new version of Word, so that Word 4's RTF is different from Word 5's.

Confused? The nonstandard-standard dilemma is worse for graphics files. Although most Mac and PC graphics programs worth their salt can output files in EPS (Encapsulated PostScript) format, not all EPS is alike — particularly on the PC, where it differs among programs. You can run into trouble, especially if you need an editable file. The old Adobe Illustrator 88 EPS format is a fairly safe one to use for editable EPS, because several Macintosh and PC programs support it directly.

Similarly, the Mac's bit-mapped TIFF format is not the same as TIFF on the PC, although the differences are less pronounced than the ones with EPS files. Mac TIFF and PC TIFF differ only in the way the data in the file is numbered, and most PC applications use the same type of PC TIFF. If you have Adobe Photoshop, for example, you can save files directly in PC TIFF. Photoshop can also import and export in PCX, GIF, and TGA, which are three PC bit-mapped formats.

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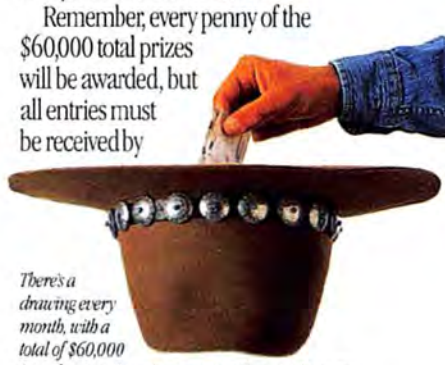
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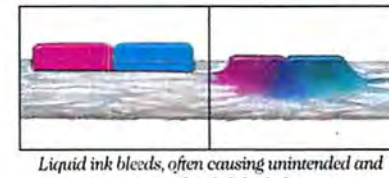
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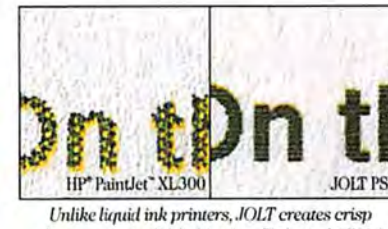


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translation decreases with increasing document complexity. If formatting is important to you, file-translation software can be a big help.

Translation Software

The easiest translation technology to use — and also the least expensive, because it's included with applications — is XTND (pronounced *extend*). Developed by Claris and now distributed by Apple, XTND enables users to add file formats to XTND-compatible applications by dropping one or more translator files into a folder. The new file formats appear on the Save As menu inside your word processor, spreadsheet program, or other application. Applications that use XTND include most of the Claris product line (MacWrite II, FileMaker Pro, Claris CAD, and so on), WordPerfect, MacVonk Canada's Ragtime3, and Symantec's GreatWorks. There's also XTND-compatible connectivity software, such as Lotus' cc:Mail, which uses XTND to translate files automatically.

Because many applications don't use XTND, you may need to buy a file-translation package. The long-reigning king of file-translation programs, MacLinkPlus/Translators ($169), from DataViz (203-268-0030), is the most comprehensive, with more than 700 translators for word-processing, spreadsheet, graphics, and database formats. MacLinkPlus can be operated from a stand-alone Mac, on a network, or from a PC connected to a Mac serially. Its translators are XTND-compatible and can be used from within XTND-compatible applications.

Other file-translation packages aren't as comprehensive as MacLinkPlus, but they usually perform more-specialized translations. These products include Software Bridge/Mac ($159), from Argosy Software (212-274-1199); LapLinkMac III ($149.95), from Traveling Software (206-483-8088); Word for Word/Mac ($149.95), from The Software Toolworks (415-883-3000); and PICTure This ($149), from FGM (703-478-9881).

Argosy's Software Bridge specializes in word-processor translation. It generally does a better job than MacLinkPlus in translating all the details of highly formatted documents. Also, Software Bridge's interface shares many ease-of-use features with MacLinkPlus, including transparent file translation (double-click on a XyWrite file, for example, and it opens in Nisus format) and drag-and-

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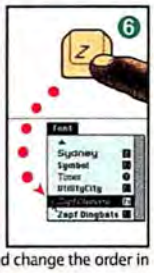
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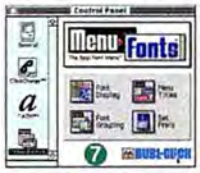
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drop translating under System 7.

I can't particularly recommend LapLinkMac III and Word for Word/Mac, two word-processing translators that are popular on PCs. Although they handle a good selection of PC formats, their translators for Mac applications are limited.

For translating graphics, try PICTure This. It has more graphics translators than MacLinkPlus, although it translates in only one direction (PC graphics into Mac PICT formats). Despite its limited function, PICTure This does a very good job at translating graphics files and color palettes, and it lets you set the degree of dithering.

PICTure This can translate more than two dozen file formats, from OS/2, Windows, Amiga, Sun, Silicon Graphics, Apollo, and X Window — as well as several Mac formats — into three types of Mac PICT formats, which can be converted into other Mac graphics formats from within most graphics applications. These PICT formats include the original PICT1 and the newer 32-bit-color PICT2, which lets you specify the image resolution in dots per inch. A monochrome version of PICT2 is available for creating smaller documents. PICTure This also sports a very nice interface that includes Balloon Help.

Some other Mac/PC/UNIX graphics translators I haven't had a chance to look at are CADMover ($495), from Kandu Software (703-532-0213), and deBabelizer ($299), which Equilibrium Technologies (415-332-4343) had just announced at press time. CADMover translates CAD and drawing-program formats, and deBabelizer translates a variety of bit-mapped graphics and animation formats, including QuickTime movies.

Just Say No

Once you get hip to file translation, it's easy to resist one-app-fits-all peer pressure. Of course, if you actually *prefer* WritePerfectXyStar for Macintosh or some other multiplatform application, I'm not saying you shouldn't use it. Go ahead, but use it for the right reasons: because it helps you do your work, because you're proficient in it, or because you like the Easter egg in the About dialog box — not because the people in the accounting department use it on their PCs.

John Rizzo exerts his peer pressure as *MacUser*'s technical editor and author of *MacUser Guide to Connectivity*, published by Ziff-Davis Press.



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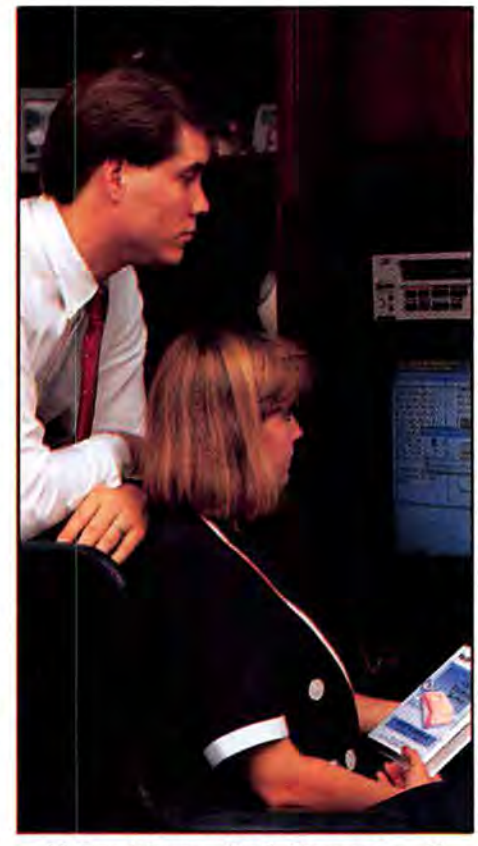
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CIRCLE 83 ON READER SERVICE CARD.

Ever seen the speaker inside your Mac? It looks pathetic and has sound to match. Acrotech (818-449-3256) believes that its MacStereo box offers a solution to this problem. It plugs in to your Mac's audio-out jack and broadcasts the sounds (most of them mono) to your FM receiver, which can be as far as 50 feet from your Mac. Cost: $119.95. Alternatively, you can go to Radio Shack, buy a patch cord, and connect your Mac directly to your stereo for superior non-FM sound. Cost: about $6.

By James Bradbury



What goes up: Knowledge Revolution recently shipped Interactive Physics II — a substantial upgrade to the original Eddy Award-winning program that helped you understand Newtonian physics by letting you create virtual experiments. Looking for a bargain for a **future Nobel Prize winner?** The original version of Interactive Physics is now being marketed as Fun Physics (hold the oxymoronic jokes, please) for just $99. 415-553-8153. ✱ If you've already mastered plain old Newtonian physics, you can sink your teeth into relativity theory with Animated Relativity, a multimedia version of Jacob T. Schwartz's 1962 classic textbook *Relativity in Illustrations.* The program (the first in a series from The Multimedia Library) leads you step by step through Einstein's theory, using lots of diagrams and cartoons to make it comprehensible to mere mortals. 212-674-1958. $199.

Family jewel: If your idea of relativity has more to do with aunts and uncles than with time and space, consider Reunion 3.0, the latest version of a HyperCard-based genealogy program that earned 4.5 mice in 1990 and still features a well-thought-out and intuitive interface. New features let users link to color and gray-scale photos and record family narratives. Perfect for PowerBook-equipped research. 717-697-1378. $169. ✱ Keeping track of your relations can be fun and educational; keeping track of your personal possessions, however, will prove to be essential if you ever have to file an insurance claim in the wake of a **natural disaster** (and there's been no shortage of those lately). Nolo Press' updated For the Record program — now called Personal RecordKeeper 3.0 — will do a much better job of recording your possessions than your memory ever could. New features include the ability to export data to Quicken. 510-549-1976. $34.96.



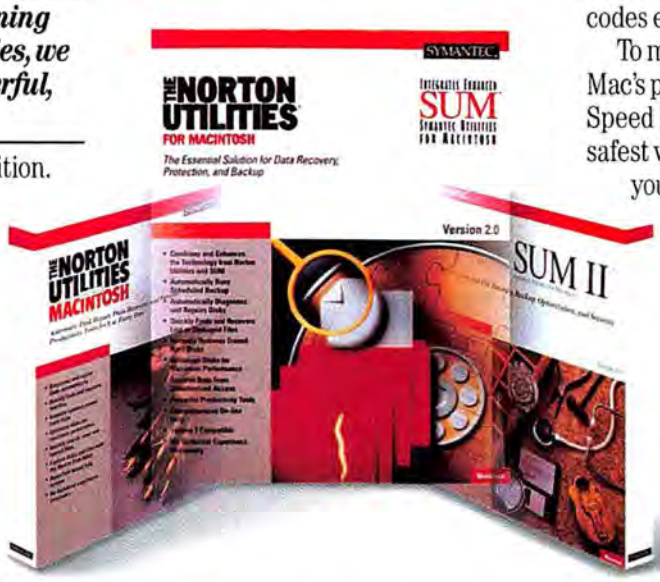
Coming attractions: Last month we mentioned the AudioClips packages of beep sounds from "Star Trek," *Star Wars,* and *2001.* Now the company (Sound Source Unlimited) has taken the next logical step and obtained permission to market video QuickTime "beeps." The first package, which should be available now (on a lot of floppy disks), has beeps from *Star Wars.* Eject a floppy, and watch the **Millennium Falcon** blast out of a hangar. Future releases will include the rest of the *Star Wars* trilogy; "Star Trek" (both new and old); *The Wizard of Oz;* and *The Lawnmower Man,* which you may recall was a film about virtual reality. Talk about life imitating art. 805-494-9996.



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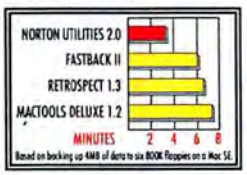
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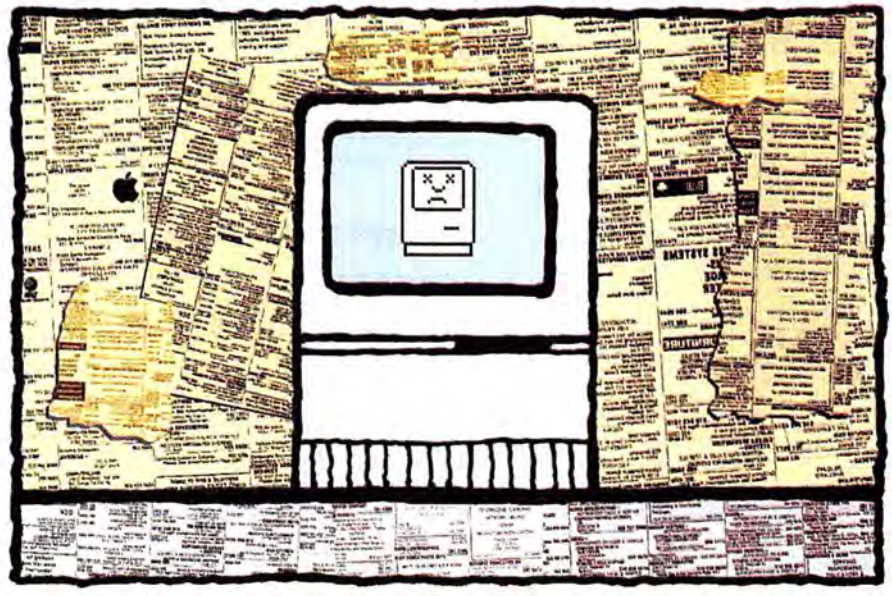
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Finding Good Help

Where do you turn when your hardware dies? The wrong choice can cost you time and money.

By Steven Bobker



What do you do when you're right in the middle of an important project and your hardware suddenly quits?

If you work for a big company or a school with thousands of Macs, the answer is easy: You call Microcomputer Support (or whatever that department is called at your site), and get help. Help is usually quick and efficient and comes with loaner equipment to tide you over. If you're on a network, as is increasingly common, the bulk of your working data probably resides on a server and is backed up daily or even more frequently. Even if your site doesn't consolidate data on a server, it may provide remote automated backups. The odds are that you're covered for both hardware and data.

Personal-Macintosh users are rarely so lucky. Far too few of us back up monthly, much less daily. Say the word *loaner* to your dealer, and you may be asked to provide a cash loan. But the situation, at least as far as your hardware goes, isn't completely grim. You've got some options, and I'm going to tell you about all of them. (As for the safety of your data, that's entirely up to you. Back up faithfully.)

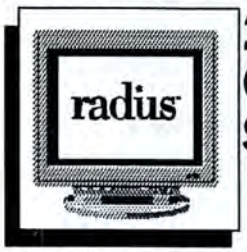
The first place most people turn when their Macintosh fails is their dealer. Call Apple, and that's the advice you'll get (unless you're a PowerBook owner — if you are, you can get very fast and special service by calling 800-SOS-APPLE [767-2557]).

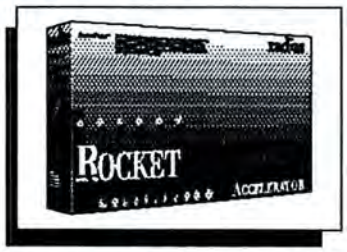
Turning to a dealer first may be the wrong thing to do, unless the item is under warranty or the equipment is covered by AppleCare (Apple's pricey extended warranty). Instead, you should start by asking yourself whether it wouldn't be more cost-effective just to replace the dead equipment. Remember to factor into the equation that new equipment is generally more powerful (making you more productive), is less expensive, and avoids costly downtime. Prices of computer equipment always fall over time, so last year's $500 SuperWidget might cost $250 to insure and/or repair whereas a much better SuperWidget Plus costs only $300 today.

There's another reason you should consider replacement. Repairs take time, often measured in weeks. You usually don't have that sort of schedule. New equipment can be acquired much more quickly, generally by tomorrow morning.

If you do decide to have someone make the repair, you have two choices: an Apple dealer or an independent repair shop. Apple dealers are a mixed lot. The best are wonderful, but great dealerships are rare. Three that deserve special note are New York City's J&R ComputerWorld (212-349-4727), the Milwaukee area's North Shore Computers (414-963-9700), and the San Francisco area's ComputerWare chain (415-496-1000).

You can go to the dealer where you bought the equipment or to any dealer. As long as your Apple equipment has a serial number and is less than a year old (or is AppleCare-

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covered) and is not obviously abused, the dealer should provide warranty service. The you-didn't-buy-it-here excuse holds no water.

If you bought your Mac through mail order, then you bought it from a dealer Apple says wasn't authorized to sell it. As long as the Mac has a serial number and you have a valid receipt, however, that doesn't matter in terms of warranty repair. Unfortunately, many mail-order resellers remove the serial number, in which case you're out of luck.

If, despite all the good advice you've heard about backing up, the only copy of your thesis or novel is on a hard drive that is currently doing a devastatingly accurate impression of a stone, don't give up.

A major difference between Apple dealers and their independent counterparts is the way they approach making a repair. Apple dealers don't do what are called component-level repairs; instead, they swap entire modules. If a serial port (an inexpensive part) blows on your Macintosh II's motherboard, the Apple dealer will install — and you'll pay for, unless your computer happens to be under warranty — a new motherboard. Ouch! The price for that will make your average doctor bill seem reasonable.

Independent repair shops, on the other hand, do component-level repairs, which can translate into big savings. For instance, repairing a bad Mac Plus power supply (an analog-board swap) would cost several hundred dollars at an Apple dealer. At a shop such as Mac Wizard (800-742-4539 or 415-681-3223), it costs about $50. The shop repairs the defective board, does excellent work, and warrants its repairs.

Most larger cities in the U.S. now have reliable Macintosh repair shops, which tend to be both fast and inexpensive. The best way to find a reliable repair shop in your area is to consult your local user group.

D.I.Y.

For some Mac repairs, there's yet another option: Do it yourself. If you are able to do simple electronic repairs (soldering, wiring, and so on), this is the least expensive way to go. Boards and some parts are available from Pre-Owned Electronics (800-274-5343 or 617-275-4600) and Shreve Systems (800-227-3971 or 318-742-0546). Pre-Owned and Shreve are also excellent sources for used Apple equipment. For parts, the single best source is MicroMat (800-829-6227 or 415-898-6227). Aside from publishing the wonderful MacEKG 2.0, it can supply every Macintosh part (except some proprietary chips).

Some do-it-yourself repairs require no electronics skill. For those who have an LC, IIsi, IIcx, or IIci, for example, replacing the power supply takes mere minutes and is simple enough for anyone to do. Power Plus Systems (800-722-0602 or 801-973-8489) makes replacement power supplies for all Macs. These units are almost always far better than the Apple originals and supply far more power (useful for big hard drives and other peripherals). Prices start at $150.

If you've got an older Mac or Apple peripheral, you can find detailed information on how to perform your own repairs in Larry Pina's *The Dead Mac Scrolls: How to Fix Hundreds of Hardware Problems Without Going Bankrupt* (Berkeley, California: Peachpit Press [510-548-4393], 1992; $32).

If your floppy drive dies and you have an external-floppy port, simply get AEHD Plus, from Applied Engineering (800-554-6227 or 214-484-1365). It adds instant, SuperDrive performance — even to Pluses — for $449.

If your mouse fails, you'll discover that most Apple dealers want $100 or more for a replacement. Cheaper and equally effective alternatives are the Little Mouse, which comes in ADB and serial versions and is available from Mouse Systems (510-656-1117), and the ADB-only MouseMan, from Logitech (415-795-8500). I use a MouseMan, and I like it far better than any trackball or Apple mouse.

Third-party components, such as printers and hard drives, are often best repaired by their maker. Call the manufacturer to see if it can do repairs directly or to find out where you can take the item for repair. Independent shops can occasionally handle third-party equipment well, but sometimes you're best off going



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to an authorized repair center.

If, despite all the good advice you've heard about backing up, the only copy of your thesis or novel is on a hard drive that is currently doing a devastatingly accurate impression of a stone, don't give up. Some companies attempt to recover your data, in what could be described as the computer equivalent of a root canal. The process will destroy your hard drive (not that it was of further use anyway) and is expensive (at least several hundred dollars). Depending on the size of the drive and the details of the failure, the price can be very high. But if we're talking about the sole copy of priceless data

One of the best data-recovery companies is DriveSavers (415-883-4232). It also repairs those impossible old SuperMac DataFrames. Also try Ontrack Data Recovery (800-872-2599, 800-752-7557 in CA, or 612-937-5161).

Finally, if there's a deadline 36 hours away and all seems lost, consider renting a Mac. This is an expensive proposition, but it may solve an immediate problem.

StuffIt Deluxe 3.0 is the champ: It has many virtues for home-office telecommuters, who are often constrained by disk-space limits and the need to deal with different file-compression formats.

The easiest way to rent is to call GE Rental Lease (800-437-3687), which delivers and picks up in most areas.

Follow-up

Dale South, of the University of Toledo, suggested (via the Internet) that the shareware printer driver Print2Pict should be mandatory on every PowerBook. In addition to letting you "print" documents as PICT or paint files, this Chooser-selectable driver allows printing to a Postcard, a PICT file with a built-in viewer application that lets it be transferred to any Mac and viewed with a double-click. The viewer includes a Print command, so you can just generate the Postcard, transfer it to the desired Mac/printer combination, double-click, and print. All this for $10. You'll find Print2Pict in Library 3 of ZiffNet/Mac's Download & Support Forum (P2PICT.CPT).

Home-Office Pick of the Month

Lots of good things are being said about StuffIt Deluxe 3.0, and the praise is well deserved. The program has many virtues for home-office telecommuters, who are often constrained by disk-space limits and the need to deal with many different file-compression formats. Before this version of StuffIt Deluxe, you required a whole folder of tools, some of which had truly horrendous interfaces (UnZip 1.10 comes to mind) and some of which performed very slowly. Because any free-lancer can

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tell you exactly what "Time is money" means, this situation wasn't good.

The new StuffIt Deluxe is fast — fast at extracting files compressed in its own format and fast at extracting files compressed in a wide variety of formats. Besides being substantially faster than its predecessor, StuffIt Deluxe now compresses and expands in AppleLink PKG, BinHex4, MacBinary (BinHex5), btoa/atob, UUCode, and tar formats. It extracts files from CPT, ZIP, and Pack-It archives. It also converts between Mac, PC, and UNIX text formats (they differ).

There's far more: Segmenting, security, and automatic compression only scratch the surface of this amazing tool. It was vaporware for a long time, and many had their doubts that it would ever ship, much less work well. Now there's no question: StuffIt Deluxe 3.0 is the champ.

Hatching Easter Eggs

Several people, including Greg Cassel, from the Internet (you can reach me at 72511.45@compuserve.com from there), and Alex Narvey, from CompuServe, discovered a bunch of Easter eggs in version 2.0 of Norton Utilities for the Macintosh.

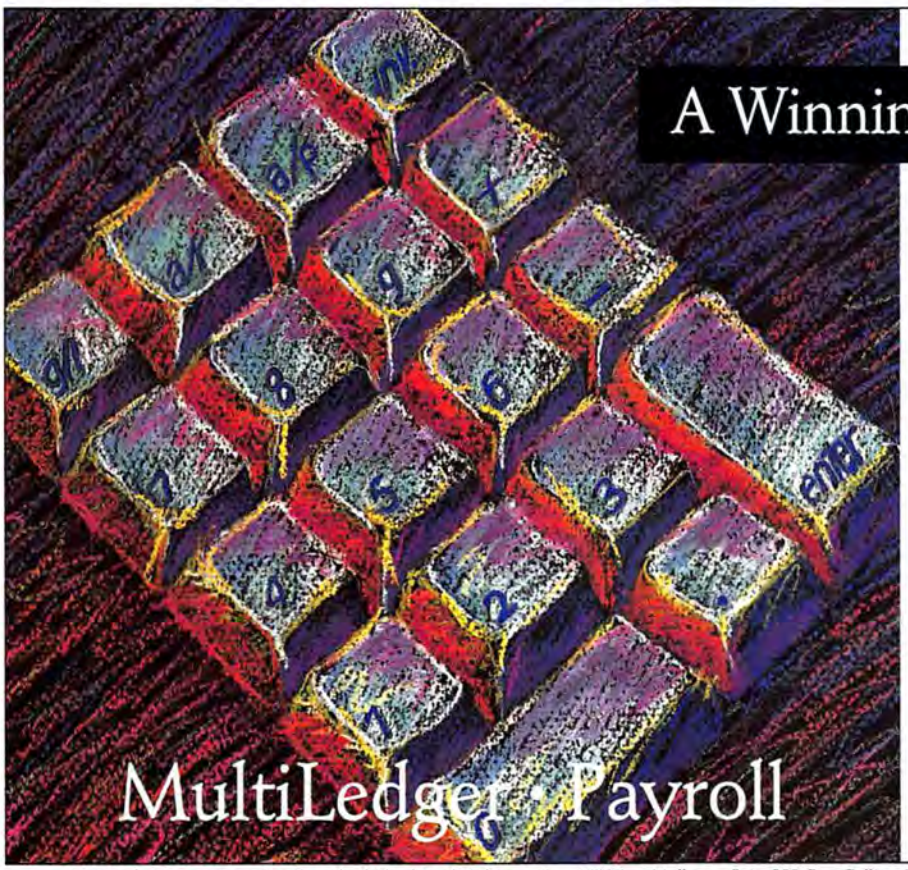
In the Norton Utilities application, select About Norton Utilities from the Apple Menu while holding down the Command or Option key. To see a neat scrolling list of the development crew, click on the large icon at the top left. Option-clicking on the diamond in front of the version number when no list is scrolling displays a picture of some of the developers.

In Wipe Info, select About Wipe Info from the Apple menu and click on the diamond in front of the version number while holding down the Command or Option key. The cursor turns into a little eraser. Move it back and forth to erase the window and show a bunch of zeros.

Mike Boudreau, of Urbana, Illinois (who also sent his note via the Internet), discovered a neat extension to the Finder 7.0.x Easter egg reported recently. If you hold down the Option key while in the Finder, the About This Macintosh command in the Apple menu becomes About The Finder, and you see the artwork from version 1.1g of the Finder. If you hold down both the Command and the Option keys, the cursor turns into a well-known icon of the Mac-less '70s.

Roy Hoover has created a small program called Who?, which displays the famous Easter egg pictures that are hidden in the Mac SE ROM without your needing a programmer's switch. You simply run Who? and click on the "Show 'em to me" button, and the pictures are displayed. If you're running System 7, you can press Command-Option-Escape, instead of turning off your computer, to exit. Under System 6, you still need to turn off the computer or reboot to exit. You can find this well-behaved program on ZiffNet/Mac (WHO?.BIN in Library 1 of the Download & Support Forum) and America Online.

Steven Bobker, once upon a time, edited *MacUser*. These days he runs the MacUser Forum on ZiffNet/Mac and searches the world for Easter eggs. You can reach him on ZiffNet/Mac at 72511,45.



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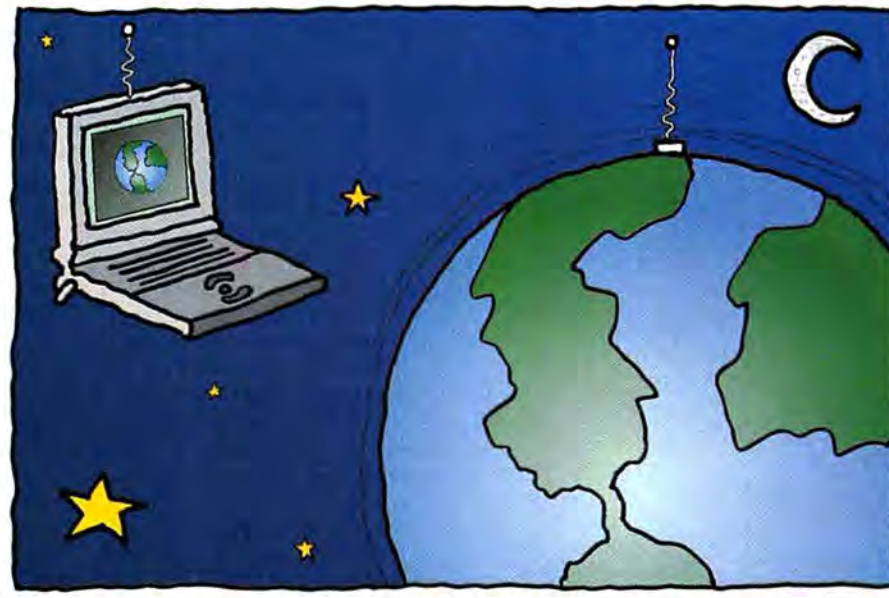
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CIRCLE 130 ON READER SERVICE CARD.

Ubiquitous Computing

Being mobile shouldn't have to mean being disconnected. Here are a couple of ways to stay tuned in when you're on the go.

By Henry Bortman



Scene 1: the airport-shuttle van. You're heading out on a business trip. Suddenly it hits you: You forgot to E-mail that crucial memo to your boss.

The mental gears start turning. The file's on your PowerBook. You've got the PowerBook with you. It has a modem. There's a phone at the airport. You're saved.

Scene 2: the airport. You head for a pay phone. Oh, %&*#. You forgot. There's no RJ-11 jack on a pay phone. You can't plug in your modem. Wait. You've got your cellular with you. No. Same problem: no RJ-11 jack.

The gears begin to turn again. OK, you think, taking a deep breath (which is difficult — you're running to the gate): It's a two-hour flight. Figure another hour to get to the hotel. You'll still have time to send the file before your boss goes home for the day.

Scene 3: the hotel. A charming establishment. Slightly off the beaten path. Wood beams in the ceiling. Ferns hanging all over the place. You might even get to relax a bit on this trip. But no time to appreciate the ambiance right now. You've got a file to send. You rush to your room. Your eyes light on the phone. You lunge for the phone line and then stop dead in your tracks. It's hard-wired. On both ends. Doom.

You Said "Mobile" Computing?

You bought your PowerBook so that you could do your computing on the road. As our tragic tale points out, however, *mobile* doesn't always mean *connected.* But remember that cellular phone back in Scene 2? What if you could use it for data transmission?

If this possibility appeals to you, you'll want to keep an eye on a company named Applied Engineering (800-554-6227 or 214-241-6060). AE is venturing into the communications arena with a family of CommPort products that are among the most exciting I've seen this year.

The first item out the door (it should be available by the time you read this) will be an intelligent cellular-phone interface (not yet officially named). It's an adapter, powered by a 9-volt transistor battery, that sits between your PowerBook's modem and your cellular phone. It allows you to send faxes as well as data via your cellular phone. AE will offer custom cables for plugging the cellular interface in to units from many of the most popular cellular-phone vendors, including Oki, NEC, Fujitsu, and AT&T. Although you'll probably want to be stationary when making a data call — the airport lounge is a better choice than the shuttle van — and your maximum data-throughput rate will likely be 9,600 bps, you'll no longer need to be tethered to a wall jack to send or receive data or faxes. The price was not firmly set at press time but should be less than $350.

The other product, which should also be available by the time you read this article, is an internal voice/data/fax modem. Pay close attention to the word *voice.* Other internal



MOBILE MAC

modems for PowerBooks, among them Global Village's line of PowerPort modems, have fax/data capability, but Applied Engineering's modem will be the first to incorporate voice capability. And AE doesn't plan to do it halfway. With special hardware on the modem's circuit board and the accompanying CommPhone software, your PowerBook will be able to double as a telephone (or speakerphone) and answering machine in addition to transmitting faxes and data.

To use the PowerBook as a speakerphone, you employ its built-in speaker and the bundled microphone. And because your PowerBook qua speakerphone will still be very much a computer, it will be able, through software, to provide such deluxe-model features as auto-redial, volume control, and speaker muting.

AE's CommPhone software will not only turn your PowerBook into a telephone/speakerphone but it will also turn it into an answering machine, recording incoming messages as long as two minutes. You'll be able to record customized outgoing messages for different callers, using either the phone company's caller IDs (in states that allow their use) or special PIN numbers that CommPhone will let you assign to those who dial your PowerBook regularly, to distinguish among callers.

CommPhone will include all the features of a top-of-the-line answering machine. You'll have a message counter, of course, and the tape-recorder-like user interface will let you rewind past, listen to, or fast-forward selected messages. You'll be able to delete messages. You'll even be able to dial in to your PowerBook remotely and, again using caller IDs or PIN numbers, listen only to messages from specific people. And — don't try this with your answering machine at home — you'll be able to cut and paste messages into documents in any application that supports sound. CommPhone will also take advantage of the PowerBook's wake-on-call capability, so you won't have to leave your PowerBook on in order to receive calls when it's unattended.

In the more mundane department, CommPhone will be bundled with FAXstf fax software and a data-communications application, which hadn't been chosen at press time. The total cost for this package — the voice/fax/data modem, the Norris EarPhone, CommPhone software, and fax and data-communications software will be less than $800. Place your order now.

Totally Cellular

There's more. Toward the end of the year, AE will go for the gold with the introduction of what it calls a communications microcontroller. You see, the folks at AE think that the PowerBook should be able to contain the necessary technology to fulfill all of your communications needs. So they've come up with a scheme for adding cellular and other wireless connectivity capability to your notebook.

The microcontroller gets installed in your PowerBook where the floppy-disk drive currently resides. (AE installs your floppy in an external floppy-drive box and gives it back to you. Alternatively, you can get the microcontroller installed in an external floppy-drive package.) It contains three interfaces. One is cellular RF circuitry that, when used in conjunction with the voice-telephone capability of the CommPort hardware and software, enables you to use your PowerBook to make voice, data, or fax calls over cellular-phone systems.

Another of the interfaces is a PCMCIA (Personal Computer Memory Card International Association) interface, which supports a wide variety of credit-card-sized devices — anything from radio transceivers for cellular data networks such as ARDIS and Ram Mobile Data to RAM cards that emulate 15-megabyte hard-disk drives. Applied Engineering intends for this PCMCIA interface to be used for radio connections, but users will be able to take advantage of the PCMCIA slot for any compatible device. PCMCIA RAM-disk drives, for example, may become the floppy-disk drives of the future, capable of being exchanged among different types of computing devices.

The other section of the microcontroller is a spread-spectrum radio interface. Spread spectrum is coming into vogue for use in building-sized wireless local-area networks. Apple has shown a great deal of interest in spread-spectrum networking. The microcontroller can support simultaneous connections on any two of the three interfaces.

If you need more wireless connectivity than this, you're in the wrong century. Price for this package: less than $3,000.

Seeing Red

Scene 4: the conference room. You just flew back from your business trip with the new international sales-forecast spreadsheet. But the plane was late. Then it took 30 minutes to get a cab. You were

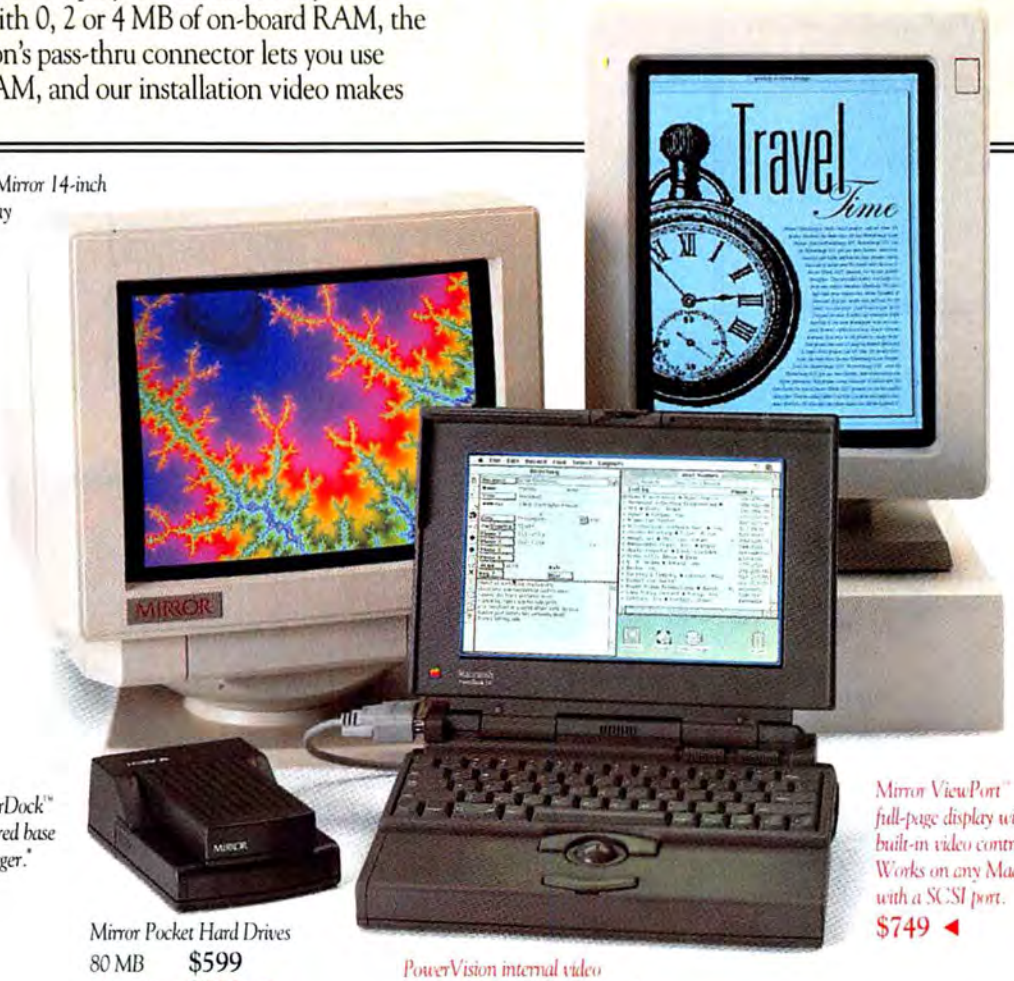
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expecting to return to the office in time to hook in to the network and E-mail everyone a copy. But instead, you walk into the meeting 45 minutes late. The 15 other attendees have decided to start without you. No one else has seen the forecast. They are all staring at notebook computers. But there are no network connections in the conference room. You have no way to share the data.

You could pull out a bunch of telephone wire and LocalTalk connectors and start stringing a network together. But your tardy entrance has caused enough disruption already. Wouldn't it be nice if you could connect to a network just by bringing your PowerBook into the room?

This is where infrared technology is headed. And Photonics (408-955-7930) is working on a few things in the back room that may affect your future in this regard. Unfortunately, all I can tell you about today is what the company's doing for PC users — nothing on the Mac side is official. Because Apple owns a big chunk of Photonics, however, it's not too big a stretch to imagine that Photonics will be producing Mac products someday, maybe even soon. So get out those special glasses you use to read between the lines.

Around the time you read this, Photonics will be making two announcements: One will be a program for licensing its infrared-transceiver technology to CPU manufacturers for incorporation into their computers. PC notebooks will be the most likely candidates. Triumph-Adler is already shipping its notebook computers with a version of these Photonics transceivers built in. Photonics' diffuse infrared transceiver transmits data at 1 megabit per second and, when used on a PC, supports NetWare, Microsoft LAN Manager, and other popular network operating-system protocols.

(Put on the glasses: Although Apple doesn't want you to think of Newton devices as computers, the company has dropped some strong hints about how they may be incorporating infrared instant-network technology. Future PowerBooks may also benefit.)

Photonics' other announcement will be of its Collaborative family of products. The first of these will be a PC add-on, Collaborative PC. It will consist of an ISA/EISA network-adapter card, an external diffuse-infrared transceiver that plugs in to the card, and network software. One example of how this might work: People with notebook computers that contain built-in infrared transceivers might walk into a room and instantly be able to communicate with a server in the room equipped with Collaborative PC. OK, so this scenario is a bit farfetched. Most NetWare and LAN Manager servers don't sit in the middle of a conference room, and users don't usually wander into the network administrator's server closet to create a wireless connection. But give Photonics a little time: It has some more tricks up its sleeve that will result in more-

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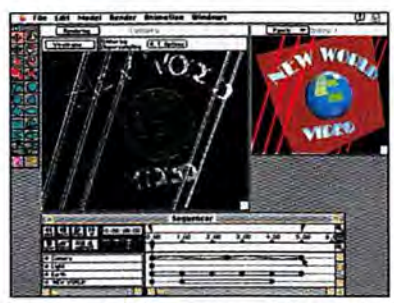


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CIRCLE 86 ON READER SERVICE CARD.

plausible scenarios in the near future.

(Glasses time again: Imagine that one of these external plug-in — Photonics calls them tethered — infrared transceivers used a LocalTalk connector as its plug. One of the great features of LocalTalk is that it's designed for dynamic networks, in which you can add and automatically configure computers and other devices, such as printers, simply by plugging in a connector. And every Mac has a built-in LocalTalk port. Put 2 and 2 together, and you can see that it would be relatively simple to establish a dynamic LocalTalk network among users who simply walked into a room, woke up their PowerBooks, and plugged their infrared transceivers in to their LocalTalk ports. With file sharing and OCE [Open Collaboration Environment], Apple's forthcoming messaging and E-mail system, the possibilities are quite rich. This is, of course, all mere speculation. I'm not preannouncing any products here — and I'm certainly not offering prices or ship dates.)

Swap Meet

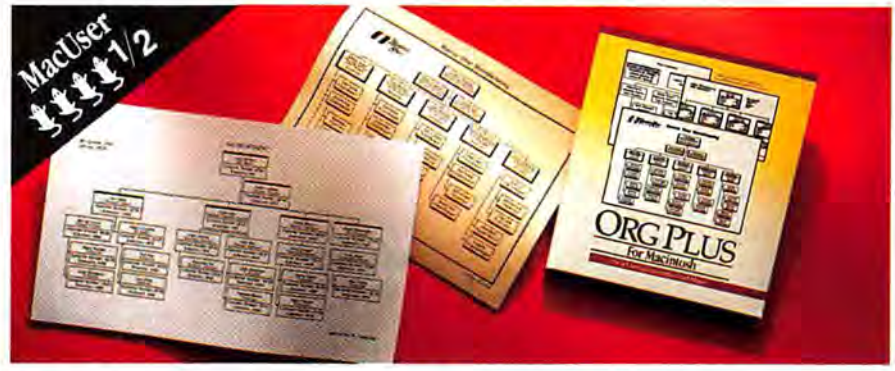
Now that you've read about the Mac's wild wireless future, here's a more modest solution to a more mundane problem. Apple, in its wisdom, designed the PowerBook 140, 145, and 170 without a backup battery and continued the tradition with the new 160 and 180. That must have reduced the manufacturing cost a whole $3 per unit. Maybe $5.

For you and me, it means that in the middle of a transcontinental flight — only twice if you're really lucky — you have to close all of your open documents, quit all of your open applications, and shut down your PowerBook so that you can swap batteries. If you're like me, you then use up five minutes' worth of the new battery's precious electrons just setting up your Mac work environment the way it was before you made the swap.

Not any more. PowerSwap, from Utilitron (214-727-2329), is a little gizmo that plugs in to the jack on your PowerBook where you normally connect your AC adapter. Drawing its power from a 9-volt transistor battery, it keeps your PowerBook going (you have to put the PowerBook to sleep first) while you swap batteries. Utilitron says one battery should be good for about a year of daily use, based on a swap operation of approximately 30 seconds.

If you frequently run your PowerBook off batteries, you'll probably want one of these. The handiness factor is extremely high. The price ($39.95) is also a bit high. Something in the $25 to $30 range would be more appropriate, especially considering that it doesn't even come with a battery. But get one anyway. If only once in your life you run out of juice in the middle of a critical presentation and PowerSwap can get you back up and running in 30 seconds, it will have paid for itself.

Henry Bortman is *MacUser*'s technical director.



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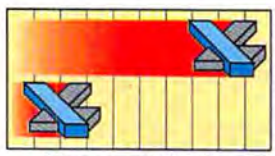
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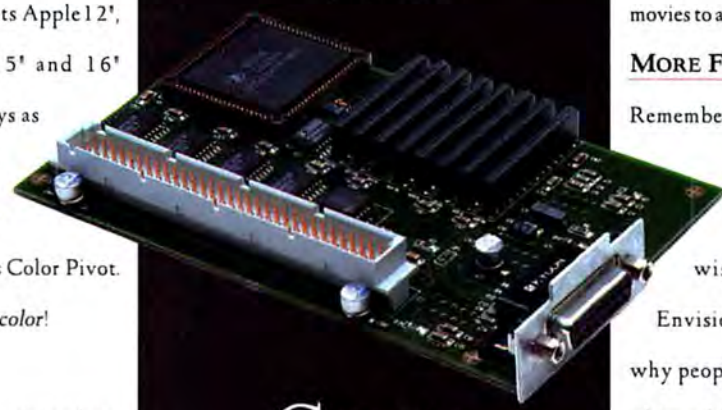


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How to Buy

Low-Cost Color Printers

Color printers used to be beyond the means of most small businesses, but with the price of inkjet color printers falling and the quality of their output rising, that's no longer true. With price tags well under $1,000, these printers let you cheaply and effectively add spot color to presentations and reports.

For more on low-cost color printers, see "The Affordable Rainbow: Color Inkjet Printers," October '91, page 140, and "Inkjet Color Printers," May '92, Buyer's Guide page 36.

By Victoria von Biel

☑ Although inkjet color printers' low prices are enticing, make sure you need this type of printer. Low-cost inkjet printers are *not* appropriate for sophisticated color-graphics work, but they are ideal for adding color to simple page elements such as graphs, logos, pie charts, and large headlines.

☑ An inkjet printer prints by spraying dots of ink onto the page. Although most color inkjet printers use only four colors of ink (cyan, magenta, yellow, and black), they create the illusion of millions of colors by employing a process called *dithering*, which places dots of color next to each other — the interaction of the colors fools the eye into seeing colors that aren't really there.

☑ Most inkjet color printers give you more than one dither pattern to choose from, so you can suit the pattern to the output. Orderly dithering, which places the dots uniformly, works best on solid colors; a chaotic pattern works better for scanned photos and complex images.

☑ To test the printers you're interested in, create a document that includes some text, a graphic (such as a logo or illustration) that includes several colors, and a scanned photo.

☑ In general, a printer with the highest possible resolution ensures that text will print sharply. At press time, the resolution of inkjet color printers ranged from 180 to 300 dpi (dots per inch), and we're likely to see color printers with resolutions greater than 300 dpi soon.

☑ The ability to share a color printer on your network is a plus. Currently, the only inkjet color printers you can share are Hewlett-Packard's DeskWriter C, DeskWriter 550C, and PaintWriter XL. To share other printers over a net, try Gizmo Technologies' Shadow Writer ($109), a software-only package for printer sharing that works with most printers.

☑ Want spot color but don't want to buy a color printer? If you have a monochrome inkjet printer, you can buy color ink cartridges and refill packs from such companies as DGR, Graphic Utilities, and Computer Friends. You can use them to add some color to your pages for about $15 per cartridge. They're a little inconvenient, but you can't beat the price.

☑ A hidden cost with most inkjet color printers is the need to use special clay-coated paper for the best results. Ink "bleeds" (which helps mix the colors), but with plain paper, which is porous, the ink tends to bleed too much, causing shapes to blur and the paper to wrinkle. Paper Plus (800-356-6962) is a good source for both inkjet paper and inkjet color-refill kits.

☑ Some makers of color inkjet printers claim that their machines print on plain paper, but make sure you know exactly what they mean by "plain." It could be ordinary photocopier stock or more-expensive laser-printer stock.

☑ If you use your printer to create overhead-projector transparencies, it's best to employ transparencies created especially for use with an inkjet printer.

☑ If you have a Mac II, IIx, or IIcx, you might need to add the 32-bit QuickDraw extension to your System Folder so that the Mac can process the color page you're sending to the printer. Newer Macs have 32-bit QuickDraw built in to ROM.

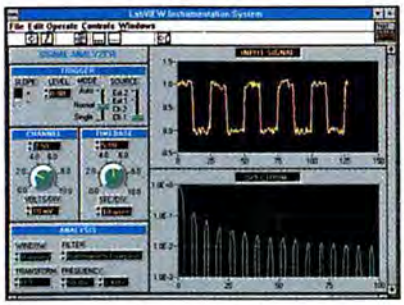
☑ Find out if you need any special cables to connect the printer to your Mac and, if so, how much they cost. Some manufacturers do not package all required cables with their printers.

☑ If an inkjet color printer is too basic for your needs, be aware that more-sophisticated printers are decreasing in cost: Street prices for some thermal-wax-transfer printers are now around $4,000.

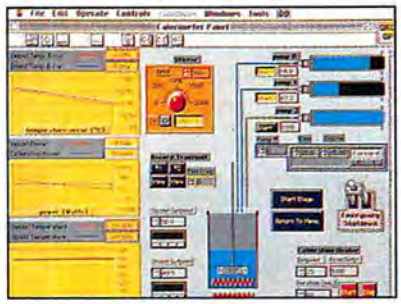


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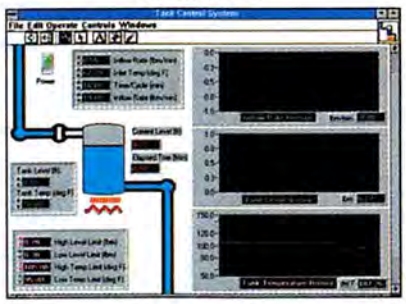
Automated Test



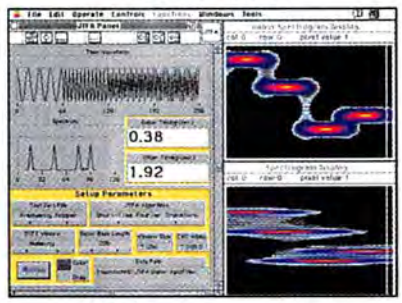
Analytical Chemistry



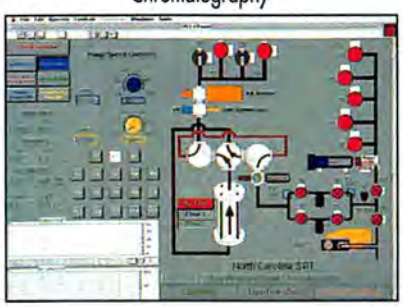
Process Control



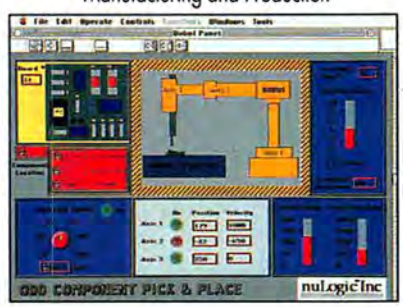
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There's no denying it — ACIUS' 4th Dimension is a powerful database program, but it's not exactly a breeze to master. For those who are interested in learning more about using or developing 4D applications, the bimonthly magazine *Dimensions* ($105 per year), from Blackledge Publishing, is a good place to start. The first four issues dealt with such topics as developing 4D image databases, the 4D server, introductory scripting, and database publishing. Blackledge Publishing also offers a couple of books (including disks) on programming with 4th Dimension. 800-424-4855 or 507-452-0023.

By Victoria von Biel



Easy updates: Let's say you have an inventory or price list that changes every few months or so. The logical way to update the file would be to change only the information that's different, leaving the bulk of the file untouched. This would take forever to do manually, but now there's a program that will do it for you. UpDiff ($169), from KyZen, detects and saves the differences between two versions of any file. You can then use the differences file it creates to update programs; graphics files; or word-processing, spreadsheet, and database documents. 609-354-3683. If you need to **compare different versions** of a document to see what's changed and what's remained the same, you can't do much better than to use DocuComp II, from Advanced Software. This new version is System 7-savvy, so you can launch the program by dragging the docs you want to compare over the DocuComp icon; even better, it works in the background and it lets you compare just certain parts of a document, rather than the whole thing. 408-733-0745. $179.95.

PC-PB détente: A PC in the office and a PowerBook 100 on the road and no way to exchange data? To the rescue comes Laptop Liberator ($195), from Software Architects, which lets you set up a DOS volume on your PowerBook's hard disk and then move files back and forth between your PC and your PowerBook via Apple's SCSI Disk Adapter cable. A version for the other PowerBooks should be available soon. 206-487-0122. If you use a modem with your PowerBook and are **sick of losing your connection** when someone picks up the phone while you're transmitting, take a look at the Interruption Blocker, from Design Tech. Plug this $14.95 gizmo in to the telephone jack of the phone likely to cause the interruption, and your modem's transmission will be locked in. 703-866-2000.



Xtra! Xtra! Call us shallow if you must, but that split-second delay between clicking on an icon and being able to edit its name has always bugged us, so you can imagine our delight when we got a copy of *Xtras for System 7,* a book/disk combo that includes a utility called SpeedName that enables you to — yes — **adjust the delay** when you edit an icon's name. It has 12 other utilities too, including Big Apple, which adds hierarchical menus to the Apple menu; PopApp, which places a pop-up application menu anywhere on your screen; the eponymous Icon Editor; and Shred•It, which overwrites any file on a disk so that it can't be recovered. Written by Sharon Zardetto Aker (coauthor of the *Macintosh Bible*), *Xtras for System 7* costs $24.95 and is published by Addison-Wesley. 617-944-3700.



Successful Startups

By Christopher Breen

Until you switch on the juice, your Mac is nothing more than a testament to '80s elegance and design. But pump a few volts down the power cord, and lights blink, fans whir, bells chime, and tiny Mac-like faces smile or frown. As mysterious as they may look, there's a lot of method behind your Mac's startup and shutdown procedures, and they're often the first place to look if you're having problems.

Christopher Breen is a Bay Area writer who wants to see the Apple ROM team throw the theme from "The Man from UNCLE" into the next top-of-the-line Mac.



1. Initial Diagnostics

Once you've switched on your Mac and current has been introduced, the Start Manager puts your machine through a series of initialization and startup routines. Diagnostic tests are run on hardware components to make sure they're running correctly, memory is checked, and the various Apple managers (such as ADB, SCSI, and Sound) are initialized or reset to their default settings. Following initialization, the Mac gives the internal drive time to power up; searches for the startup device; displays the startup screen; loads ADB resources (for your mouse or trackball); begins tracking mouse movements; installs the RAM cache, specified in the Memory control panel; loads extensions; and launches the Finder and (if it's running System 7) applications contained in the Startup Items folder in the System Folder.

- If your Mac fails one of the hardware diagnostic tests carried out at startup, you'll see the infamous "sad Mac" icon and, if you have a Mac born after the SE, hear musical tones (see the "Sound Effects" sidebar). You may be able to discover what the problem is by using one of the products listed in the directory.



2. Boot Order

When your Mac boots up or restarts, it searches for system software. In its wisdom, Apple made the internal floppy drive the first candidate for inspection, which means that if you have problems booting from a temperamental SCSI device, you can easily start with a floppy disk that contains a System file. If you're running under System 7, you can still use the System 7 Disk Tools floppy containing System 6.0.7 as a startup disk.

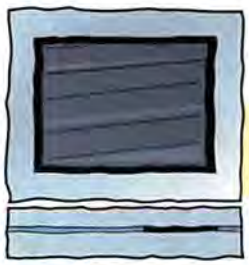
- Your Mac looks for system software by scanning drives in this order: first internal floppy drive, second internal floppy drive, external floppy drive, SCSI device selected in the Startup Disk control panel, internal hard drive, SCSI devices with addresses 6 through 0. You can skip the search for the internal hard drive at startup by pressing Command-Option-Shift-Delete or by holding down the mouse button.
- The Mac II and IIx contain two 3-volt lithium batteries that cause the computer to turn on when you press the keyboard power key. If your II or IIx doesn't start when you press the power key, check these batteries — they should read above 3.3 volts on a battery tester (see "Do-It-Yourself Mac Repairs," May '91, page 226, for instructions on putting in new batteries). Mac models from the IIcx on use a trickle current from the power supply rather than batteries.
- Your Mac's Desktop file can become bloated if you move a lot of applications on and off your disk or update the applications you use. Because the system software does not automatically slough off old Desktop-file information, you may notice that your Mac slows down or displays "generic" icons if you haven't recently rebuilt the Desktop file. To do so, hold down the Command and Option keys on startup until you see a message confirming your intention to rebuild. Be warned that rebuilding the Desktop file erases all comments in the Get Info window of your applications and documents.



4. Shutting Down

The Shut Down command closes open applications and waits for activities connected to the shutdown procedure (for example, virus scans or updates of file-saving records) to be performed. In the case of compact Macs, it also blackens the screen and instructs you to switch off the machine. On modular Macs, Shut Down issues a software instruction that switches off the power.

- You restart either by choosing the Restart command from the Special menu or by pressing the reset switch (the switch labeled with a left-pointing triangle in the programmers' key set). The Restart command ensures that all applications are closed safely and that pending activities are performed prior to restart. This command does not cause your Mac to power down completely, thereby saving wear and tear on the machine's electrical components. Use the reset switch when the Mac is frozen and you cannot exit from an application by pressing Command-Option-Escape.
- The Sleep command sends Mac Portables and PowerBooks into a dreamlike state in which the computer and hard drive power down and the battery is called on to supply only enough current to maintain the contents of RAM. In contrast, Shut Down sends data stored in the PowerBook's RAM into the Great Void.



Sound Effects

The normal startup sound of your Mac depends on the model: the compact models (the 128K, 512K, 512Ke, Plus, Classic, and SE) beep; the Mac II family, SE/30, LC, and PowerBook 100 play a chime made up of the notes C, F, and C; and the other PowerBooks and the Quadras play a C-major chord.

On post-SE/pre-Quadra Macs, error tones consist of a menacing C-minor chord, a single high C, this same high C followed by the G above, and an A-major arpeggio (each note of the four-note chord is played in sequence).

If your Quadra fails the initial hardware tests, you'll hear the first four notes of the "Twilight Zone" theme.

Arpeggio tones can be caused by a loose SIMM, a poor connection, or a bad SCSI cable. If you've checked all your connections, stripped your machine of any extraneous SCSI devices, and locked down your SIMMs and are still hearing the arpeggio or C-minor chord, take your machine to a qualified technician.

For more information on diagnosing your Mac's sounds, try to get Apple's Diagnostic Sound Sampler software, which describes the most-common error tones. You may be able to get this program from a user group or an on-line service.







● An icon of a floppy disk containing an X indicates a benign error (the Mac finds a floppy disk installed at startup that doesn't contain viable system software, for example). You may also see a floppy-disk icon displaying a flashing question mark, which means that the Mac failed to find system software on any of your drives. Try restarting.

● If you hear error tones or see a sad-Mac icon indicating a RAM failure, you could have a bad SIMM. If you are technically adept, have no fear of voiding your warranty, and promise to unplug your Mac before you start, you can go ahead and check your SIMMs by swapping each installed SIMM in turn with a new one. Alternatively, if you have memory to spare, configure your memory groups with fewer SIMMs (for example, one group of 4 megabytes versus two groups of 8) and then swap SIMMs.



3. Extensions and Control Panels

Just before your Mac comes fully to life, it loads all the extra extensions and control panels that make life worth living. Unfortunately, these digital gewgaws are often a source of conflict and can cause system crashes.

● To a degree, you can protect yourself from extension conflicts by using extension managers such as those listed in the directory. These utilities let you turn extensions on and off, choose the order in which extensions load, and create extension work sets. Conflict Catcher goes one step further by running a series of tests that attempts to isolate and disable problem extensions.



● To prevent extensions from loading at startup, hold down the Shift key while booting your Mac.



Directory

Extension Managers

Conflict Catcher
(part of Innovative Utilities)
Casady & Greene
22734 Portola Drive
Salinas, CA 93908
408-484-9228
$79.95

Extensions Manager
Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, CA 95014
800-538-9696
Free (from on-line services and user groups)

Diagnosys
Baseline Publishing
5100 Poplar
Suite 527
Memphis, TN 38137
800-926-9676
901-682-9676
$99.95

INITPicker 3.0
Microseeds Publishing
InLine Design
300 Main Street
Lakeville, CT 06039
203-435-4995
$79.95

StartUp Manager
(part of Now Utilities 4.0)
Now Software
520 S.W. Harrison Street
Suite 435
Portland, OR 97201
800-237-3611
503-274-2800
$149

Maintenance and Repair

Disk First Aid
(part of Mac system software)
Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, CA 95014
800-538-9696

MacTools 2.0
Central Point Software
15220 N.W. Greenbrier Parkway
Suite 200
Beaverton, OR 97006
800-445-4208
503-690-8090
$149

Norton Utilities for the Macintosh 2.0
Symantec
10201 Torre Avenue
Cupertino, CA 95014
800-441-7234
408-253-9600
$149

Public Utilities
Fifth Generation Systems
10049 N. Reiger Road
Baton Rouge, LA 70809
800-873-4384
504-291-7221
$149

Diagnostic Software

Help!
Teknosys
3923 Coconut Palm Drive
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$149

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MicroMat
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Novato, CA 94947
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For a free demo disk of the cc:Mail for Macintosh Platform Pack, call **1-800-448-2500.**



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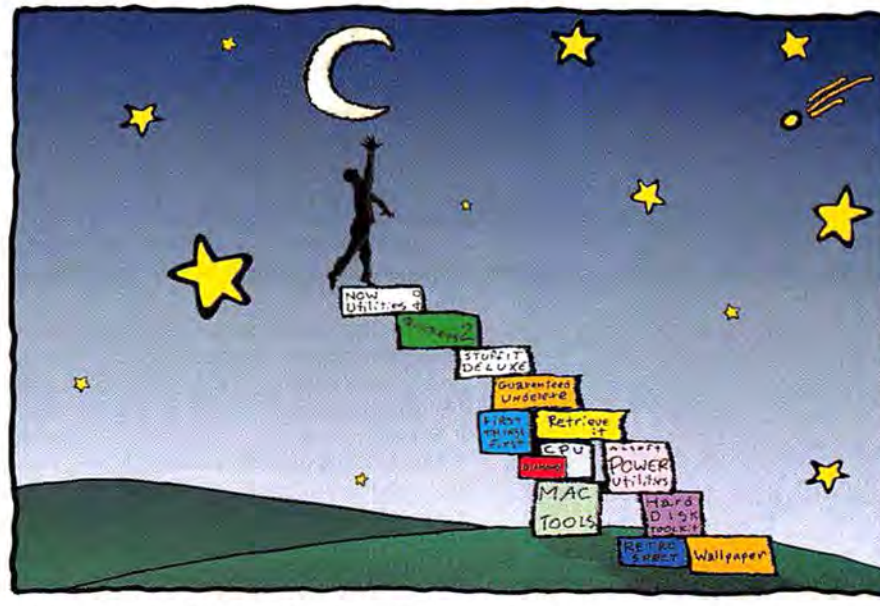
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My Favorite Things

As Frank Sinatra once said, "It was a very good year" — for utilities, that is. Here are 13 of the hottest system enhancements of 1992.

By Bob LeVitus



Although 1992 brought some impressive new products — Retrieve It!, Guaranteed Undelete, and Connectix PowerBook Utilities (CPU), for example — mostly it will be remembered as the year of the upgrade. It was the year comfortable old friends such as Now Utilities, QuicKeys, StuffIt Deluxe, and MacTools were rejuvenated. Each of them has been improved, updated, and modernized so completely that, if you haven't seen them in a while, you'll be shocked at how good they've become.

Here's a baker's dozen (in reverse order of preference) of the best utilities released this year. But before I begin, let me warn you that this list is neither scientific nor fair. I picked these products because they are the ones I like and wouldn't dream of using my Mac without. And I wasn't very fussy about release dates either — a few of these products came out at the end of 1991 but weren't widely available until this year.

13. Wallpaper. Wallpaper (Thought I Could, 212-673-9724; $59) is a clever control panel that lets you replace your boring gray desktop with a pattern with pizzazz. Wallpaper lets you display, create, edit, and save as many cool 256-color or black-and-white desktop patterns as you like. There's even a randomization feature so you can have your Mac automatically change patterns throughout the day. And in case you aren't feeling creative, hundreds of patterns are included with the program and you can download hundreds more from on-line services such as CompuServe and America Online or get them by subscription from Thought I Could. It's not much of a utility in the traditional sense (it won't improve your productivity a whit), but I guarantee that Wallpaper will make looking at your monitor much more fun.

12. Retrospect. Backing up your work doesn't have to be a pain in the you-know-what; all you need is a good backup utility. My choice is Retrospect (Dantz Development, 510-849-0293; $249). It's powerful, fast, and reliable and does just about everything you need in order to back up or archive your precious work. It supports floppy-disk drives; removable-media drives such as SyQuest, Bernoulli, and read/write optical; plus almost every tape drive in existence. Although its interface is sometimes quirky, once you've created a backup script, you can run it with a single command. I use it with my DAT drive, and it's nothing short of wonderful.

For what it's worth, two other backup programs just missed making the list — DiskFit Pro (also from Dantz, $125) and Redux Deluxe (Microseeds, 813-882-8635; $149). Both are superb and less expensive and easier to use than Retrospect. Neither is as flexible or powerful, however, and although Microseeds is considering tape-drive support for Redux Deluxe, neither one currently supports tape drives.

11. Hard Disk Toolkit. Hard Disk Toolkit (FWB Software, 415-474-8055; $199) is a



POWER TOOLS

BEATING THE SYSTEM

SCSI-utility package that gives you total control over your hard- and removable-disk drives. It allows you to customize almost every aspect of formatting a disk, perform true SCSI partitioning, execute extensive diagnostic and benchmark tests, and so on. Although many people are satisfied with the formatting software that comes with their drive, if you're a tweaker, you're going to love Hard Disk Toolkit. It's powerful as all get-out, and its interface is much better than that of its chief competition, Silverlining, from La Cie. It also kicks the stuffing out of Silverlining in the documentation department — Hard Disk Toolkit's 250-page manual is so good that FWB should consider selling it even without the software. It contains some of the best and most accurate information I've ever seen about SCSI devices and SCSI chains.

A less expensive (and less comprehensive) product is Drive7 (Casa Blanca Works, 415-461-2227; $79). It's easier to use than Hard Disk Toolkit but lacks its depth and breadth. On the other hand, if you don't care about tweaking every last parameter, it's very good. Like Hard Disk Toolkit, it can be used with most brands of hard drives — even SuperMac DataFrame and LaserFrame drives — which is something no other formatter can claim.

10. MacTools. MacTools 2 (Central Point Software, 503-690-8090; $149) has quickly become my favorite data-protection tool. If you used a previous version of MacTools, you're probably a bit skeptical. And you should be — earlier versions were not very good. But version 2 has been totally rewritten. It's a stellar upgrade that includes several unique features you won't find in Norton Utilities for the Macintosh. My favorite is that you can undo any disk-recovery action if it doesn't work. That alone is worth the price of admission. Although both Norton Utilities and MacTools can undelete files, optimize disks, and fix many hard-disk problems, I now find myself turning to MacTools first.

That's not to say that Norton Utilities isn't a good product. It is. If MacTools doesn't do the trick, I try Norton Utilities. But with "sidegrades" from Norton Utilities to MacTools 2 priced at only $59, owning both makes a great deal of sense.

9. Diamonds. OK, so it's not a utility — it's a game. But it's a really cool game from a small company you may not have heard of, so I'm sneaking it in. Diamonds (Varcon Systems, Inc., 619-563-6700; $49) is the most addictive game I've played since CrystalQuest — it's the perfect combination of easy to learn and difficult to master. When you finally do master one level, you're presented with another even tougher one. It's like those potato chips — betcha can't play just once!

8. ALSoft Power Utilities. AlSoft Power Utilities (AlSoft, 712-353-4090; $129) combines two essential utilities and five bonus programs for a reasonable price. Essential utility No. 1 is MasterJuggler, my favorite suitcase manager. It lets you access fonts and sounds (and DAs under System 6) without actually installing them in your System file. Essential utility No. 2 is the disk optimizer DiskExpress II, which defragments and optimizes disks quickly and safely. I've used it for years and have never had a problem with it.

The other utilities included in the package — partitioning software, an Apple-menu enhancer, a disk-diagnostic program, a screen saver, and a disk-activity indicator — are pretty good but not nearly as spectacular or useful as MasterJuggler or DiskExpress II.

7. Guaranteed Undelete. If you've ever dragged a file to the Trash, emptied it, and then regretted what you've done, you need Guaranteed Undelete (Utilitron, 800-428-8766 or 214-727-2329; $79). It's a control panel that guarantees you'll be able to untrash recently deleted files. Simply hold down the Command key, and — poof! — the Empty Trash menu selection changes to Recover Trash, and a hierarchical menu lets you choose which file or folder to undelete. Even better, Guaranteed Undelete also lets you erase confidential files, select individual items you want "emptied," and specify when the Trash should be automatically emptied (for example, hourly, on disk eject, or at shutdown). It's the best, fastest, and most dependable product of its type, and it's simple to use.

6. First Things First. If you've ever forgotten an appointment (or even to take the trash out on Tuesday night), you're going to love First Things First (Visionary Software, 503-246-6200; $69). The only thing it does is remind you when things need to be done, but it does that beautifully. Basically, it's a clock — either in your menu bar or floating on your screen as a nifty icon — that keeps track of things you need to do. It's extremely easy to use and great looking as well.

When a reminder comes due, a sound plays and an in box appears on-screen. You double-click on the in-box icon at your convenience to view the reminder. You can even print your reminders. Other programs include pop-up reminders, but no other appointment program is as inexpensive, elegant, and easy to use as First Things First.

5. CPU. Connectix PowerBook Utilities (Connectix, 800-950-5880 or 415-571-5100; $99) offers a cornucopia of useful utilities for PowerBook users. It gives you complete control over the processor, display, and hard drive so you can stretch the battery pack's life. It also includes password protection, an LCD screen saver, a cursor locator, and a comprehensive menu-bar display. One of its best features is Keyboard Power, which lets you choose any menu or dialog-box item from the keyboard without using the trackball.

Other PowerBook utilities have been announced, but this was the only one shipping at press time. It's impressive and has worked beautifully so far. Unless something a lot better comes along, this is the one I'll use.

4. Retrieve It! Retrieve It! (MVP Software, 415-599-2704; $129) is one of the bright new stars of 1992. It quickly finds any text in any file on any mounted disk. I have thousands of files, so I love programs like this. Until recently, I used a similar program, On Location (ON Technology, 617-876-0900; $129), to search for text inside my files. On Location is faster, but Retrieve It! is more powerful. Like On Location, it lets you peek at the text within any file and copy text it finds, without launching the program that created the file. The big difference is that Retrieve It! can perform Boolean searches, which lets you define very specifically what you're looking for — for example, you can have it find *Sculley* and *Apple* but not *Pepsi* or have it find *Sculley* within 50 characters of *Pepsi*.

3. StuffIt Deluxe. The competition was fierce in the 1992 compression wars, but StuffIt Deluxe 3.0 (Aladdin Systems, 408-761-6200; $120) is what I use. Although AutoDoubler and DiskDoubler from Fifth Generation Systems (800-873-4384 or 504-291-7221; $79.95 each) are strong contenders, the StuffIt Deluxe package (now including SpaceSaver, which automatically compresses files on your hard disk) is stronger. No other compression or archiving program is as easy to use. For example, to stuff a file, you simply add the suffix *.SIT* to its name. To unstuff a file, you just delete the *.SIT* suffix. Although it's easy to use, it's also incredibly deep and powerful, with a built-in scripting language and extensive support for Apple events. Another nice feature is its ability to decompress several file formats (AppleLink packages, Arc, Compact Pro, DiskDoubler, PackIt, and Zip, among others). If you need a compression program, my advice is to check this one out first.

2. QuicKeys 2. QuicKeys 2 (CE Software, 515-224-1995; $149) is a great macro program. Just about anything you can do on a Mac can be automated and executed with a single keystroke, using QuicKeys 2. Three new features — Instant QuicKeys, QK Icons, and SoftKeys — make the latest version (2.1.2) the best yet. Instant QuicKeys creates a complete, powerful QuicKeys environment when you first install the program; QK Icons makes a double-clickable mini-application out of any QuicKey macro; and SoftKeys lets you select as many as ten QuicKeys macros, pop them up on-screen with a single keystroke, and then choose the one you need. This is one of the tools I use most often and one I wouldn't dream of living without.

1. Now Utilities 4.0. If you use System 7, you simply must get a copy of Now Utilities 4.0 (Now Software, 503-274-280; $149). It's the best, most comprehensive, and most useful collection of system enhancements I've ever seen. NowMenus creates submenus on your Apple menu, launches files instantly, adds keyboard command equivalents to any menu item, and does much more. In my experience, it beats every other Apple-menu enhancer hands-down. SuperBoomerang is the greatest thing ever to happen to an Open or Save dialog box — it lets you move instantly to any file or folder and keeps track of which files and folders you've used recently. Once you've tried it, you'll wonder how you ever got along without it. Now Utilities' other components are NowSave, StartUp Manager, WYSIWYG Menus, Now Scrapbook, and Now Profile. Now Utilities is, without a doubt, the most powerful, useful, and helpful utility package on the market.

Bob LeVitus is the author of *Dr. Macintosh*, second edition, and *Dr. Macintosh's Guide to the On-Line Universe*.

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Upgrading the Mac IIci

Most people will be more than satisfied with the basic performance of a IIci right out of the box. It's faster than a IIsi and comparable with the machines Apple has just announced to replace both it and the IIsi (the Performa 600, the IIvx, and the IIvi). But, unlike some other older Macs, the IIci is a good upgrade candidate. With almost any upgrade route you choose, you'll get a machine that's a worthy competitor to a Quadra 950 — and for much less money than the high-priced spread.

By Don Crabb

The IIci has a power supply that can fully power most NuBus cards (it has three slots), a reasonable fan, a 25-megahertz 68030 CPU, a PDS (processor-direct slot) expansion bus that holds a 32K processor cache card, eight SIMM slots (the Quadra 700 has only four plus built-in memory), and built-in 8-bit video.

Naturally, you'll want to start your IIci upgrade with **memory.** I have eight 4-megabyte SIMMs in my IIci at home, for a total of 32 megabytes of RAM. With 16-megabyte SIMMs, you can get 128 megabytes of RAM, because the ROMs in the IIci are 32-bit clean. However, these SIMMs are expensive and draw a fair amount of juice. If you mix your SIMMs, remember that the IIci's memory map distinguishes between two four-SIMM banks of RAM and that each bank must be filled with SIMMs of the same size and speed. The IIci uses part of the RAM in bank A as video-display RAM for the built-in video, so for the best performance, fill that bank with the fastest, largest SIMMs you can afford.

The IIci comes with built-in 8-bit video, but it steals RAM and power from the CPU to make the video work. You can save RAM and and CPU power by using one of the NuBus slots to hold an inexpensive 8-bit **video card** that will provide the same display resolution as your built-in video. For more money, you can move up to 24-bit video (maybe with QuickDraw acceleration) and get into some serious QuickTime action.

Thanks to the IIci's three NuBus slots and its PDS/cache slot, users can choose among many good **ultrafast CPU-upgrade** options. Even Apple sells a replacement motherboard that turns the IIci into a Quadra 700 with a 25-megahertz '040 CPU. However, this Apple board has the same problem as the 700 itself — too little oomph for too many bucks (despite its on-board 24-bit video and fast SCSI-2 controller).

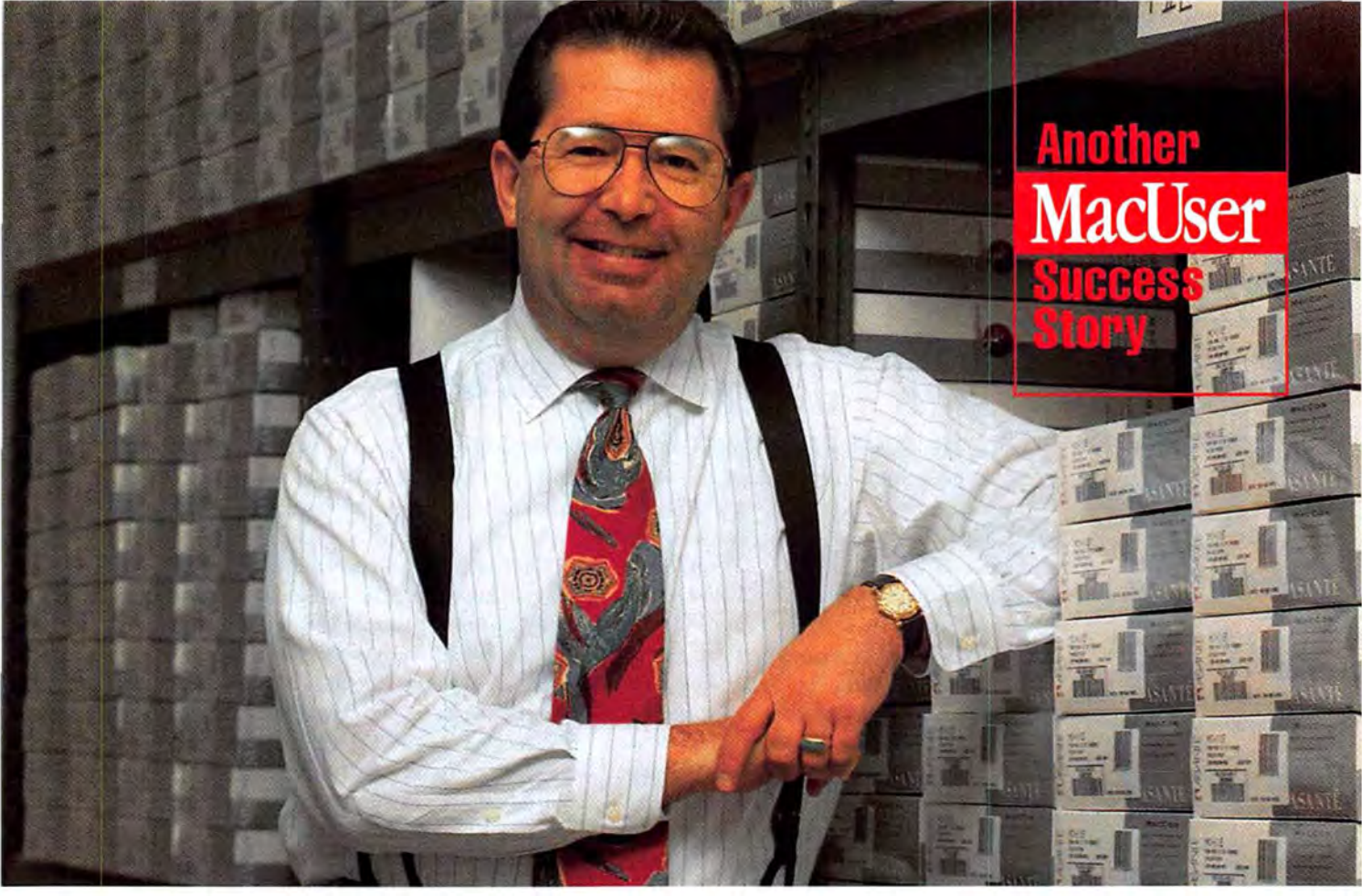
A better bet for '040 power is to look at the third-party NuBus accelerators on the market, such as those from Impulse, Fusion Data, and Radius. These can make your IIci faster than a stock Quadra 950, although you may have some software-compatibility problems.

If you don't need top performance from your IIci, plug an **'030 accelerator card** in to the IIci's PDS to boost performance at a reasonable price — you'll have few compatibility problems. Sigma, DayStar, and Fusion Data are just a few of the vendors that offer these cards.

Older IIci's have an empty cache slot (Apple's now supplying a cache card with each IIci). For around $200, you can boost your IIci's speed by 30 percent or more with a **cache card.**

Table 1: Recommended Upgrades for the Mac IIci

Upgrade	Pros	Cons	Cost
8 – 128 MB of RAM	Speed.	Can be costly if you use 16-MB SIMMs.	$100 – $4,000
68040 accelerator board	Speed, speed, speed.	68040-compatibility problems.	$1,500 and up
Quadra 700 replacement motherboard	Speed. Built-in 24-bit video.	Cost. 68040-compatibility problems.	$3,300
8-bit-video card	Improved speed.	None.	$150 – $350
24-bit-color card	Better visuals. QuickTime.	Expensive, especially if you buy a large monitor.	$550 – $4,000
Fast internal hard drive	Fast access time. More storage space.	Large-capacity drives can be pricey.	$650 – $2,000
Cache card	Cheap speed.	None.	$200
Total price			$650 and up
Street price of new Mac IIvi			$3,500
Street price of new Quadra 700			$5,000



Mr. Ron Volkmar, Vice President, Sales & Marketing, Asanté Technologies, Inc.

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TIP SHEET



Nobody ever said you had to live in Cupertino to be a Macintosh expert. Know-it-alls are everywhere, from Manhattan to Malibu — even in Waldport, Oregon, where we found our own Mac guru, Philip Russell. Each month Phil shares his own tips plus the best of the 70-odd Macintosh-user-group (MUG) magazines he reads each month. But Phil can't do it alone. To those whose undocumented Mac tip *MacUser* prints, we pay $25, and the Reader Tip of the Month earns $100.



Send your tip, together with your name, address, and phone number, to Tip Sheet, c/o *MacUser*, 950 Tower Lane, 18th Floor, Foster City, CA 94404. You can also contribute tips electronically via ZiffNet/Mac, the on-line service for *MacUser*. Send



them to Gregory Wasson at 72511,36. Be sure to include your full name and mailing address along with the text of the tip.

By Philip Russell

Reader tips compiled by Gregory Wasson

■ If you have a damaged application, the most likely bomb error code you'll see is ID = 26. That means it's time to reinstall the application from the master disks.

■ You can copy text that is found with Word 5.0's Find File option from the Find File preview window and paste it wherever you need it.

■ A QuickTime hint from ProMUG's newsletter, *MacViews:* Name a QT movie Startup Movie and place it in the System Folder, and your Mac will play it during startup (of course, you also must have the QuickTime extension installed).

■ To get rid of a folder that will not go away, create a folder *on another drive* and give it the same name as the problem folder. Drag the new folder to the location of the problem folder and let the new folder replace the problem folder. Now you have a folder that can be trashed.

■ To see how much memory an application is using under System 7, turn on Show Balloons and then go to About This Macintosh, on the Apple menu, and run the cursor over the program's bar in the graph.

■ If you think the HyperCard manual from Apple is too meager, print out the HyperCard Help stack. On some topics, the Help stack contains more information than the manual. To conserve paper, use the half-sheet-sized printout.

■ Here's an easy way to do a daily backup without using a backup program: Open CE Software's DiskTop (or a similar program), and choose Find. Use the Created and Modified date boxes to show all documents changed or created that day. Click on Retain, and then select the documents that show up. Select a destination floppy disk or hard disk, and copy the selected files to it. This backs up all the documents created or modified during the time period you've specified.

■ When mailing floppy disks, you can use the U.S. Postal Service's book rate, which is far less expensive than first class for disks or printed matter that weigh 4 ounces or more. For material weighing less than 4 ounces, first class is cheaper and faster.

■ There are six ways to make more (or fewer) words fit neatly on one line in PageMaker: Use a different font, size, or style; use Set Width to increase or decrease letter widths; use tracking to change the space between letters; use left alignment instead of justified (or vice versa); kern letters farther apart or closer together; or change the hyphenation settings.

■ You can make an easy to-do list that requires almost no memory by populating a folder named To-Do List with empty folders. Make each folder's title a to-do item. Leave the To-do List folder out on the desktop if you want it to be handy, and clone it to other disks with a simple Finder-to-Finder copy so you have it everywhere you need it.

■ To get a pica ruler for use in an application that does not measure in picas, take a screen dump of a ruler in an application that does measure in picas. Doctor it up in your favorite graphics program, and then put it into the Scrapbook and paste it in when you need it.

■ If you've got a floppy disk that won't initialize, this may help: Take a bulk tape eraser of the type used to clean audiotape and run it over both sides of the disk using small, neat oval motions. Just remember to keep it away from good disks and your digital watch.

■ When you scuff across a rug on a dry day, you can zap some unsuspecting soul with an arc of electricity from the end of your finger. Just think how that juice could fry your Mac! If you find you have "electric" fingers, touch a piece of grounded metal to ground yourself before you touch your Mac.

■ Sometimes it's hard to move a really tiny object in page-layout or graphics applications. The cursor gets in the way, so you can't see where you're placing the object. Here's a solution: Draw a medium-sized black-filled box in a nearby empty space.

Reader Tip of the Month: Norton Utilities

Problem: You create a document on the fly in a word processor and immediately send it to the printer. As soon as the Print command is accepted, you quit the application without saving the file, because all you wanted was one printed copy. Then the printer jams or there's a power failure, and you've lost your work.

Solution: Use UnErase from the Norton Utilities package. Even without FileSaver installed, you should be able to recover the very last item erased from the drive (sort by date to find it as quickly as possible), which in this case will probably be the contents of the PrintMonitor spool folder. Once you've recovered the file, simply drag this item back into the PrintMonitor folder (in the System Folder) and PrintMonitor will ask you if you want to rerun the print job.

Robert Appel
Thornhill, ON
Canada

Shift-click on the box and the tiny object to select both of them. Place the cursor on the box and move it. Watch your tiny object. When it's in the right place, deselect the items and delete the box.

■ I still run into people who simply flip the on/off switch and turn off their Macs whenever they feel like it. No, no, no! Always use Shut Down, on the Special menu in the Finder. The Shut Down command takes care of housekeeping for you and leaves your Mac in good condition.

■ The right side of the keyboard is not the only location for your mouse. Left-handers often put the mouse on the left side, because it feels more natural. However, since keyboard activity is more demanding than mousing, right-handers may want to try the mouse on the left side, which leaves the right hand free for more-complicated keyboard duty. Michael Pierce, a Portland, Oregon, PageMaker guru, recommends that you give this arrangement at least a week before you give up — it takes that long to rid yourself of old mouse habits.

Reader Tips

Floppy Disks

If you work on a Mac from which other users have ejected floppy disks without closing folders, you will often get the annoying "Please insert the disk named XXX" message. It suspends the Mac's activity, and you'll have to restart to regain control, unless you have the requested disk.

One trick for getting out of such a situation is to repeatedly press Command-period. Although you'll still need to reboot the Mac in order to avoid further instances of the same message locking up the computer, Command-period often gives you enough time to save the file you're working on.

Joseph Pendell
Riverdale, MD

Finder

Do you want to change what the Finder says when it's making copies or moving things? Here's how:

1. Make a copy of your Finder.

2. Open ResEdit, and find STR# 8750 in the copy of the Finder.

3. Change the statements you want to change.

4. Save your work.

5. Put your old Finder into the Trash.

6. Rename the Finder Copy Finder, and put it into your System Folder.

7. Restart in order to see your changes.

As with modifying anything with ResEdit, don't modify any other resources, and always have a backup.

Ben Martz
Ann Arbor, MI

AutoDoubler

One of AutoDoubler's features is that it automatically decompresses files when you copy them from your hard disk (to a floppy, for example). Of course, if you want to store your files in compressed form for archiving purposes, this feature is a drawback.

The manual states that you must use DiskDoubler, not

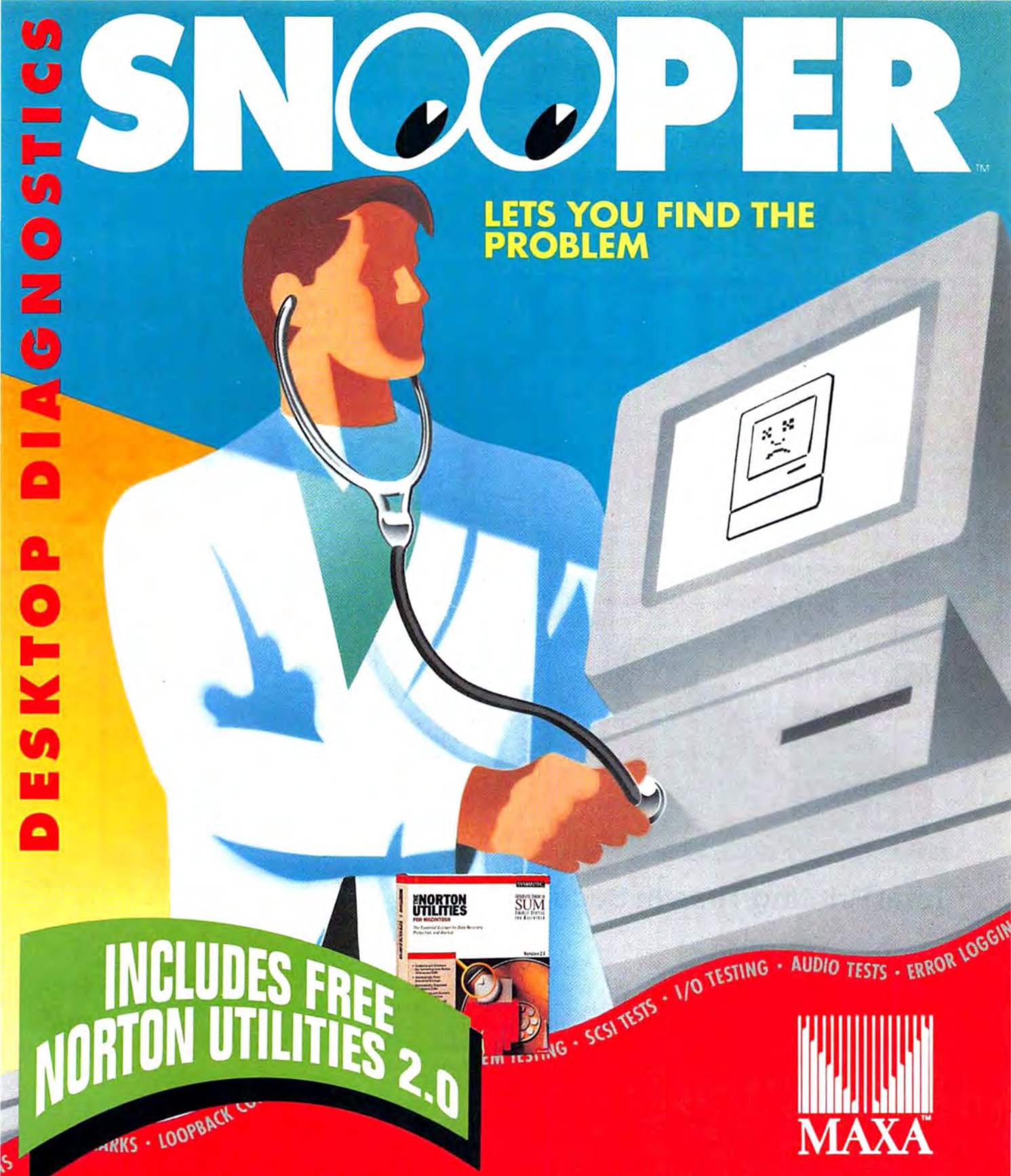


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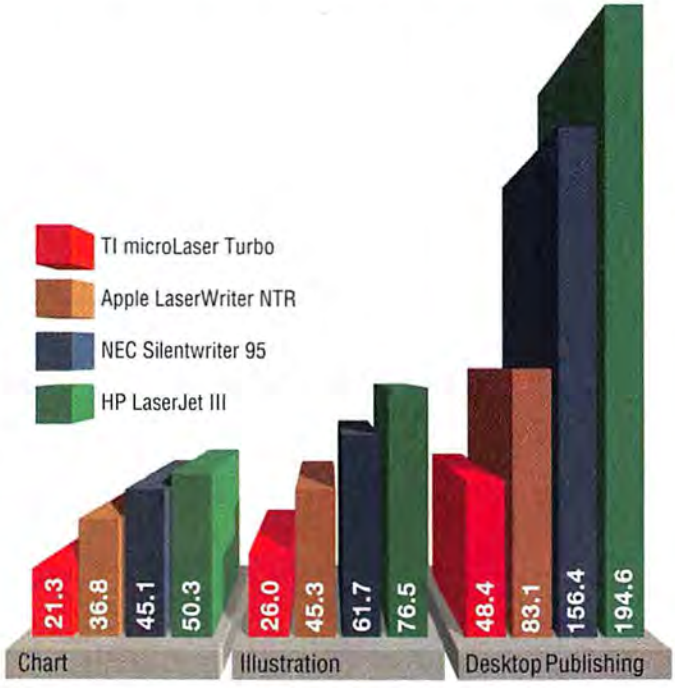
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AutoDoubler, if you want to store files in compressed format. For those who don't own DiskDoubler, here's a simple workaround:

When you're ready to archive files, simply turn off the AutoDoubler control panel. Restart and copy your files (in compressed format) to your floppy disk or removable cartridge. When you're finished, turn the AutoDoubler control panel back on and restart.

Marc Knoedler
Vassar, MI

Excel 4.0

Transporting a file between two Macs with different-sized monitors can sometimes cause problems. If you open a document in Excel that is much larger than the screen, you may not be able to access the icons to change the window size. A quick fix is to select New Window from the Window menu. This creates a copy of the original document that fits the screen perfectly. Then all you have to do is close the original document, and you're ready to go.

Joseph Pendell
Riverdale, MD

MacPaint

Ever had a chunk of text in a paint document that needed only a minor change? The text might as well be bit-mapped in stone. You can erase the whole blurb and retype it, or you can erase just the offending portion of the text and try repositioning the changed text in the correct place. Here's how to make the latter method somewhat easier: Erase the offending portion of the text. Elsewhere on the screen, retype the text as well as the character just before or after the text you've just erased. Lasso the correction, and move it into position, using the extra character as a guide.

Dan Kuchera
Waterloo, IA

Word 5.0

Here's how to automatically strip styles out of a Word document while keeping all the formatting:

1. Open the Word document you want to strip of styles, and save it as a Word for DOS file, using the Save As command.

2. Click on No when Word asks, "Attach a stylesheet to the converted Word for DOS file?"

3. Double-click on the new Word for DOS document icon (it will have a generic file icon). Word converts the Word for DOS file into a normal Word document and opens it. None of the styles (except Normal) are used to label the text, but all the original formatting remains.

Use this technique before converting any Word document to WordPerfect for DOS (WordPerfect doesn't recognize style sheets, but all the style-sheet data shows up in WordPerfect's Reveal Codes window when you use Word's regular Save As feature). You can also use this technique after you've put a whole bunch of styles into a document but want to start over without them (while keeping all the formatting).

Dave Goff
Salt Lake City, UT

QuicKeys

There are few commercial programs that let you avoid the trip to System 7's application menu in the upper-right corner of the screen, but QuicKeys users can use this simple trick to page through active applications: To switch to a specific open application, just use the QuicKeys keys that opened the file in the first place. If the application is already up and running, it will come to the front. It's an easy way to flip through open files and applications.

Craig Nelson
Deerfield, WI

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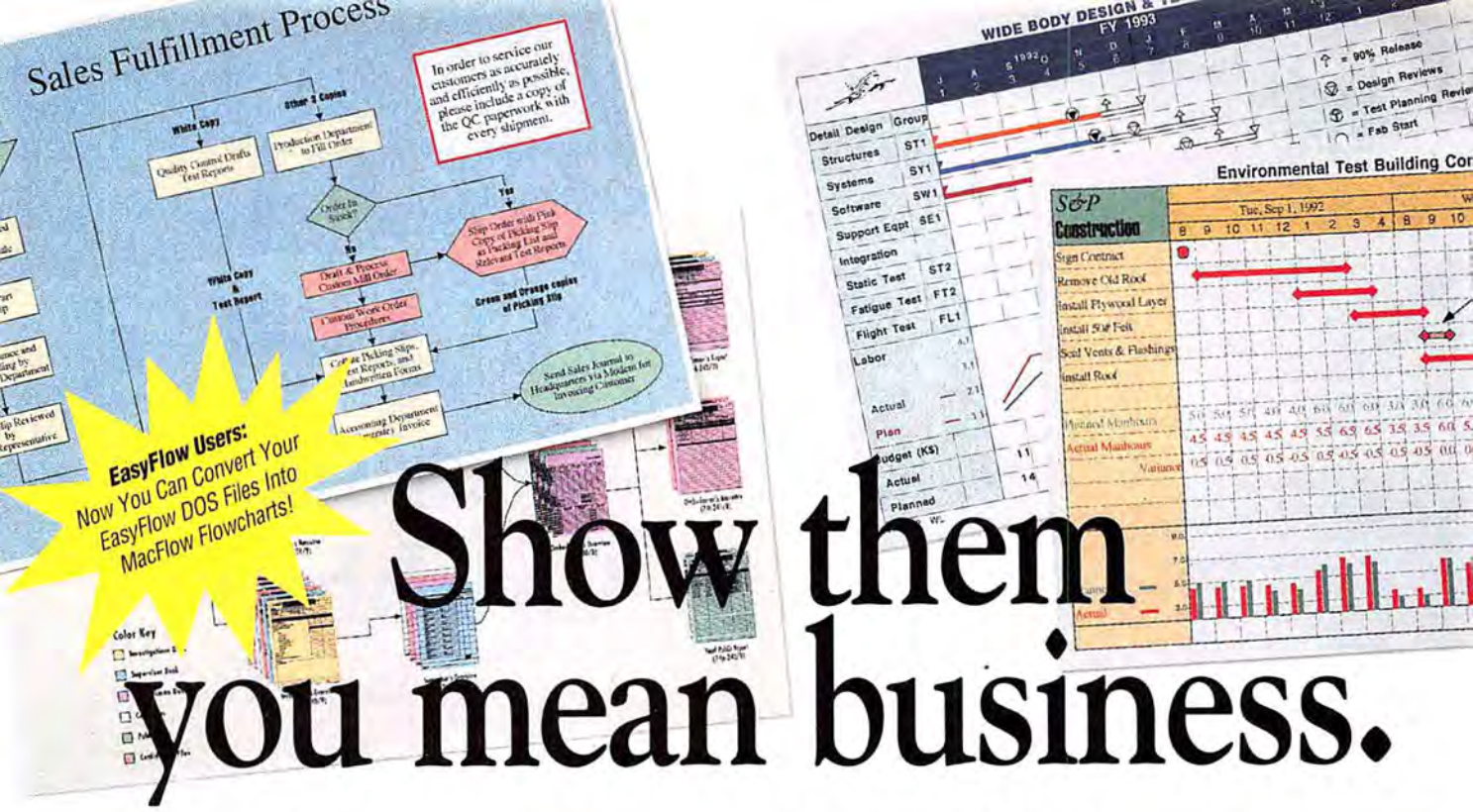
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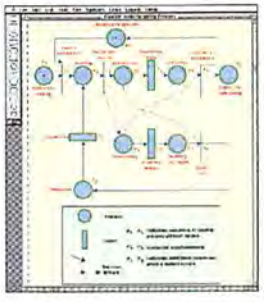
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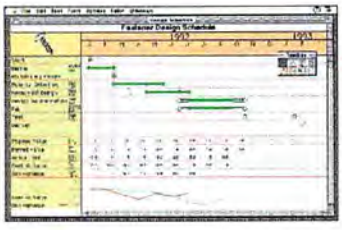
Simply drag pre-drawn symbols onto a page and connect with curved or straight lines. Place text in symbols and on lines, as well as in freestanding notes. Change the chart as desired; lines stretch and stay attached to symbols. Even create stand-alone flowcharts that can be freely distributed to any Macintosh user (and any Windows user with an optional viewer). MacFlow is also System 7-savvy, letting you publish your charts and subscribe to text. Translate to and from text in ASCII and RTF formats as well as outlines created in Acta 7 and MORE.

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MacUser Magazine July '91

MacSchedule 3.0
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CIRCLE 76 ON READER SERVICE CARD.

HELP FOLDER



Questions anyone? Here's where to get answers from the experts. Bob LeVitus is the author of the best-selling *Dr. Macintosh*, second edition. Andy Ihnatko is a longtime activist with BCS•Mac. They're both ready to answer your questions about everything Macintosh.



Write to Help Folder, c/o *MacUser*, 950 Tower Lane, 18th Floor, Foster City, CA 94404. Don't want to wait for an answer? Post your question on ZiffNet/Mac, *MacUser*'s on-line service, and get a reply from Bob (76004,2076), Andy (72511,204), or one of the other *MacUser* experts. See the masthead in this issue for instructions on how to sign up.



By Bob LeVitus and Andy Ihnatko

Quitting the Finder

Q. I would like to know if there is a simple way to close the Finder in System 7 in order to save memory. What I'm looking for is something that works much like System 6 running in non-MultiFinder mode, where launching an application closes down the Finder and reclaims the memory that it uses. Is there any way that you know of to do this?

Elaine Sudets
via Internet

Andy: Darn tootin', there is. In System 7, the Finder uses up only about 280K of memory, but when you're trying to run Nisus, Illustrator, and PageMaker at the same time, it can be a critical 280K indeed.

There's no simple keyboard command equivalent for quitting the Finder, but there is a simple ResEdit hack you can perform. First, of course, I must issue the usual message about using ResEdit only on a backup copy of the Finder, not the one you're currently using. With that warning out of the way:

Launch ResEdit, and open the Finder's fmnu resource ID 1252. Go to the second column (you should see the numbers 0001) and scroll to the bottom of the window, where you'll see the numbers 016D. Click to the right of 016D, and type 7175697481000000045175697400. ResEdit will insert this right after the 016D. Scroll back to the top of the window, and look for 000000 0001 0011 at the upper left corner. Change the 0011 to 0012, save your changes, and replace your usual copy of the Finder with your new version, and you're golden.

This hack adds a Quit option to the Finder's menu bar and allows you to quit the Finder when other applications are already open. The drawback is that when you quit the Finder, everything on the Apple menu disappears (the Finder usually acts as the Apple menu's custodian, so no Finder, no Apple menu). Thanks to regular Help Folder reader Bob LeVitus for publishing this tip in his Beating the System column (February '92, page 265), whence I ripped it off.

If the concept of resource hacking brings to your mind the image of the Three Stooges upholstering a sofa with a rifle, a funnel, and a box of tacks, then get a copy of Adam Stein's megaspiffy shareware utility System 7 Pack. It's a clean little program that can perform just about every known System 7 Finder hack. In Figure 1, you can see the Pack ready to add a Quit menu to the Finder as well as have all text and PICT files opened automatically by ConText II and Canvas, respectively (instead of TeachText); speed up Finder file copying by allowing it to grab extra memory when it needs it; and best of all, make the Finder append nothing to the end of the filename when you create an alias of a file. It's a floor wax! It's a dessert topping! It does it all.

This one program single-handedly eliminates every pesky thing about System 7 that

* . . . But Were Afraid to Ask

As to the finger of God to heav'n is thine firm and goodly attention to simplicity in ev'ry deed and word. — William Archer

I don't really know what that means either, but dangit, I was forced to learn it in college, and by my count, that one quote alone cost me $14 in tuition. If I was troubled to memorize it, then you can be troubled to read it once. Anyway, it fits with the general theme of this section, which is: Send us your simple, trivial, yea even your downright cloth-eared questions, no matter how basic. To protect you from the scorn of Archer purists everywhere, we'll say your question was sent in by a Leone-esque archetypal western anti-hero.

Q. What, exactly, is the function of the Faster Bitmap Printing check box in the Page Setup dialog box? I leave it checked by force of habit, but if the pages are coming out faster, I can't tell.

Rocky Raccoon
Ball and Socket, SD

Andy: Hate to break this to you, Rock, but the Faster Bitmap Printing option exists solely to give you the warm, fuzzy impression that you're taking informed action to improve the future quality of your life without actually having any concrete effect whatsoever — much like going to college.

Originally, the feature did indeed live up to its name. Earlier versions of PostScript, found on the original LaserWriter and the LaserWriter Plus, were woefully slow at handling bit maps; therefore, the folks writing the LaserWriter driver put in the Faster Bitmap Printing option, which let you shift all bit-map-handling responsibilities to the Mac, which could spit out results much faster than the printer could.

The comical thing is that nowadays, checking that option probably results in *slower* printing. The version of PostScript in all modern laser printers can diddle bit maps much faster than the Mac can, so unless you have an original LaserWriter, keep Faster Bitmap Printing turned off.

Thanks to Eric Apgar, of Apple, for biting the hand that feeds him and providing me with the cold, hard facts.

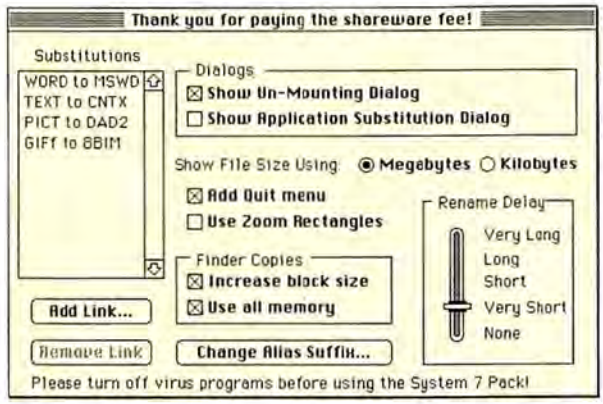


Figure 1: The shareware program System 7 Pack lets you hack System 7 even if you don't actually know what you're doing. It lets you add a Quit option to the Finder, have all text and PICT files opened automatically by programs of your choice (instead of TeachText), speed up Finder file copying, and customize alias names.

made me want to switch back to System 4.2 in a fit of blind rage. It's one of very few shareware programs so immensely useful that I paid the shareware fee on the same day I downloaded it.

Bob: System 7 Pack is indeed, as you say, megaspiffy. I too paid my shareware fee the first day. But you forgot to mention two of my favorite features. First (and foremost), it has a check box for turning off the Finder's ZoomRects — those animated rectangles that slow down the Finder immeasurably by displaying an animated zoom on-screen whenever you open a window. Help Folder aficionados will remember the two-page description last May (page 239) of how to turn the ZoomRects off with ResEdit. Take it from me, Adam Stein's System 7 Pack is *much* easier.

The other cool feature is that System 7 Pack can be used on the active Finder — it's quick and easy and has never gone wrong for me. By contrast, other programs (including ResEdit and almost every other shareware Finder-patcher I've seen) force you to make a copy of the Finder, perform your surgery on the copy, reboot from a floppy disk, and then replace the Finder in your System Folder with your surgically altered copy. Although System 7 Pack's method presents a slight danger (you might corrupt the Finder on your hard disk), just make a backup copy of the Finder before you start, and you can't go wrong.

By the way, Adam Stein is only 18 years old and will be starting college this fall. It's easy to say, "I'll pay the shareware fee if I use it a lot," but history has proved that most people never get around to writing that check. Although you won't use this product a lot, you'll benefit from it every time you turn your Mac on. So please, if you use System 7 Pack, send Adam a check. This product is worth paying for.

[*Another solution is Casady & Greene's Memory Maxer extension (part of its Innovative Utilities package), which also lets you quit the Finder under System 7. — Ed.*]

Reinsert That Disk

Q. I recently upgraded to System 7. Whenever I press Command-E or choose Eject Disk from the Special menu, the floppy is ejected, but a dialog box often pops up asking me to reinsert the ejected disk. When I reinsert the disk and repeat the procedure, it works fine. Is this a bug?

David Oliver
Springfield, VA

Bob: I'm not sure if it's a bug or a feature, but I know how to get around it. Instead of using Command-E, try using Command-Y (Put Away) or drag the disk's icon into the Trash.

When you use the Eject command, your Mac doesn't *dismount* the disk, so its grayed-out icon remains on the desktop. The Put Away command, on the other hand, ejects and dismounts the disk, removing its icon from the desktop. Dragging a disk's icon into the Trash does the same thing.

Andy: It's a supreme drag, no question. However, this problem seems to go away when you install Apple's System 7 Tune-Up, a free extension available from on-line services and user groups. It fixes a slew of System 7 bugs, including the memory-management snafu that causes this disk-swap hell. You ought to be using Tune-Up whether you've been having problems or not.

If the problem persists even after you've installed Tune-Up, try allocating an extra 32K or so to Finder memory. Apple (bless it) makes this procedure impossible to do under System 7, but you can edit the memory allocation in the Finder's "About this Macintosh" dialog box if you boot under System 6 before rebooting under System 7.

Making Color Icons Work

Q. Although I have had great success pasting color icons into the Get Info boxes of files, folders, and disks under System 7, I have several icons that just won't paste in properly. At best, they don't appear at all; at worst, they appear in black-and-white.

I won't be able to sleep until the two hard drives mounted on my desktop are adorned with these color icons. Please help!

Steve Sullivan
via AppleLink

Bob: I've discovered that certain icons don't work properly when pasted into a file's Get Info box — they either won't paste at all, they turn black-and-white, or the colors look crummy. After many hours of thought and much experimentation, I've come to the conclusion that certain icons need a thin box around them to prevent the colors from "bleeding" out (I think it's a bug in the system software). Here's the fix: Open a color painting program and draw a one-pixel-wide box around the icon, as I've done in Figure 2. The icons will paste in perfectly and in full color.

Andy: The problem is that the icon-pasting feature of System 7 was designed to be flexible enough that no matter what you tried to use as an icon, the Finder could make it work somehow. And as usually happens, whenever you add new features to software, absurdly simple things become a harrowing roller coaster to Niffleheim. When you paste an actual icon (as opposed to something you copied out of Photoshop, for example), the Finder converts it to fix any possible problems. It might change the color map, resulting in wacko colors, or build its own background mask for the icon. The reason why boxing the icon as Bob suggests will always work is because a box is the simplest mask to create. If you look at these icons, you can see that the edges are pretty irregular, which is really begging for problems.

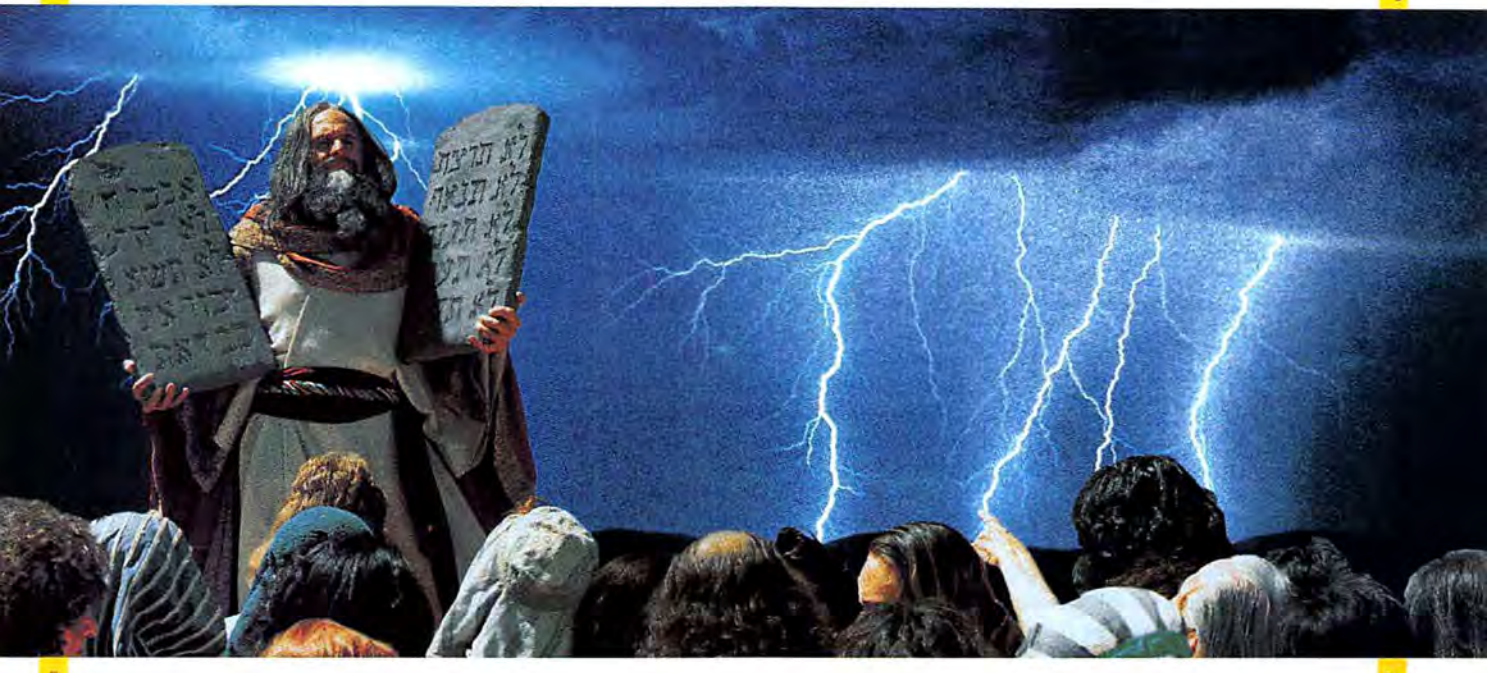
A better way to change an icon (oh, Good Lord, I just know he's going to pull out ResEdit again) is to do it by hand in ResEdit (I knew it!).

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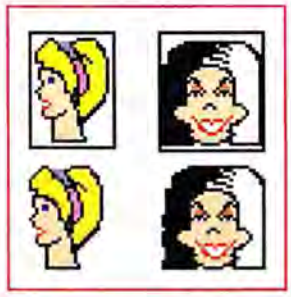


Figure 2: Although System 7 *theoretically* lets you paste custom icons on your files and folders, sometimes the color "bleeds" out of color icons, leaving you with drab black-and-white ones. The bottom icons, which have no border, will lose their colors when you paste them into a Get Info box; you can fix that by drawing a one-pixel-wide border around them (top).

In System 7, volumes with custom icons have an invisible file at the root level called Icon, which contains a single ICN# resource. Open the file containing the icon you want, open the Icon file, and just cut and paste. Because this is done at the resource level, all colors and masks are left intact and you can have different icons for different color modes and different sizes too.

You can also use a neat shareware utility, by Scott Searle, called Visage. It does all the diddling for you. All you have to do is click on the volume into which you want to install the new icon and then click on the icon from Visage's pantry. Only two drawbacks: For the life of me, I couldn't get Visage to work on any of the 68000-based machines here at my ranch (although it works fine on all other Macs), and your icon selection is limited to those that come with Visage. If you want to use any others, you have to paste them in with ResEdit.

IIsi Sonic Interruptus

Q. I am having problems with sound on my Macintosh IIsi. Everything's just fine at startup, but then the sound capability just stops. I have lots of extensions and control panels, so there must be a conflict somewhere. Can you give me some guidance on where to look?

Al Woodcock
via ZiffNet/Mac

Andy: After days of experimentation, leafing through reference books, contacting various experts, and so on, I can give you and the rest of America the definitive reason why the sound on a IIsi tends to get hosed every now and then: Could be anything.

But seriously, ladies and gentlemen, this has become a fairly common problem. The possible causes and solutions follow, starting with, relatively speaking, the lamest: One of the programs you're running isn't using Sound Manager properly. This is Apple's semi-official comment on that common IIsi problem, and it ranks right up there with "The dog ate my sound port" in terms of believability. It's very likely only if you're using a lot of sound-diddling extensions and control panels (if you are, take 'em out and see if the problem disappears).

A more widespread sound problem comes from the IIsi's being built like one of those wimpy snap-together model-car kits. All the components (motherboard, drives, fan, power supply, case, and so on) pretty much snap together without screws or lock clips (personal-best time for field-stripping one to its barest components: 42.78 seconds). The speaker is actually part of the bottom case, and all that keeps the speaker connected are two little springlike strips of metal that make contact with the motherboard when the box is assembled. If the strips are dinged up (either congenitally or through misadventure) or the contacts get gritted up, your sound might go wonky. Next time your sound goes out, plug a set of headphones in to the speaker jack. If the sound comes through the headphones loud and clear, then something's wrong in that complex Piece of Metal Touching Another Bit of Metal speaker-contact system. Crack open your IIsi, and strip it down. If you've never done this before, take it slow — take a whole minute if you have to. Bend the two metal tabs on the speaker up a bit, and then look on the bottom of the motherboard for the contacts. If they're not clean and shiny, polish 'em carefully with a pencil eraser or a piece of steel wool. Be careful not to leave any residue behind.

But here's what I *really* think is wrong with your IIsi. Offhand, I'd say that the 27 extension and control panels you have in your System Folder might — and I'm only tabling this as a possibility, mind you — be taxing your system memory to the extent that the system loses an essential handle and can no longer find the speaker. When you access the Sound control panel and make modifications, the Sound Manager sets things up all over again and inadvertently restores the sound. The fix is simple: Either learn to live with the problem or learn to live without some of those extensions and control panels.

The Ethical Mac

Q. A few of the staff members of the New Hartford Central School in New Hartford, New York, need assistance in finding printed material for a fourth-grade class studying computer ethics. We would appreciate any ideas or resources you might have.

Joan Palmer
New Hartford, NY

Bob: The Software Publishers Association (SPA) has lots of good stuff to help you teach ethics to your young charges. First, because you specifically asked for printed material, it has two free booklets. To get copies, call or write the SPA at 1730 M Street N.W., Suite 700, Washington, DC 20036; 202-452-1600. The first booklet, *Is It OK to Copy My Colleagues' Software?,* answers that question and six others and is written in an easy-to-understand style. The second booklet, *Software Use and the Law: A Guide for Individuals, Businesses, Educational Institutions, and User Groups,* takes a more technical approach and includes more-detailed information.

The SPA places no restrictions on copying and distributing these booklets, so feel free to order one of each and make copies for all of your students.

The SPA also offers a cool nine-minute video called "Don't Copy That Floppy" for a modest $10. It's done as a rap song and is aimed at students in junior high. I suspect that this lively production will make a longer-lasting impact on your students than either booklet.

Andy: I can't help putting the SPA in the same category as the NRA. I basically agree with what both groups are saying, but I find the seeming paranoia with which they operate very off-putting. Software piracy takes money out of honest programmers' pockets and is wrong; no one can deny that. The SPA provides a genuine service by providing materials to folks who are trying to solve their office's piracy problem.

But it seems to work only one way: The SPA is prepared to look the other way when a company installs copy protection that's so crippling that it makes its software unusable. I also think its estimates of industry losses due to piracy are overinflated. Lots of money is lost, but actual damages are much lower. When I think of the SPA, I think of great potential unrealized.

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Fujitsu

MB	INTL	EXTL
520	$1149	$1239
1.2G	1699	1799
2.0G	2595	2695

Includes Fujitsu's 5-Year Warranty

Toshiba

830	$1299	$1379

Yes! We have Quantum's new ELS drives in limited supplies.

**Quantum 525 & 1225 Drives Coming Soon!*

†Battery-Powered portable case for the PowerBook

WREN

MB	INTL	EXTL
630	$1599	$1699
1.2G	1749	1849
1.6G	2549	2649

Maxtor

120	$339	$419
213	499	569
340	799	899
535	1099	1199
760	1299	1399
1.2G	1699	1799
1.7G	2299	2399

Ask about our $79 extended-life PowerBook Battery

APS Technologies

SyQuest 44–the Standard in Transportable Storage



External SyQuest 44 $429

Every output service, graphics house or ad agency in the country with a Mac, has a SyQuest drive. SyQuest's 44 MB cartridge drive has truly become the standard in transportable media. You can save files on a cartridge and take them to a compatible SyQuest drive anywhere knowing you'll be able to access them quickly and effortlessly.

Helpful, knowledgeable sales associates

Toll-free Technical Support

30-Day Money-Back Guarantee

Disk-for-Disk Replacement Warranty

24-hour BBS with our latest software

SyQuest

Model	EXTL
SQ-555	$429
SQ-5110	539
Dual 44	799
Dual 88	959

SyQuest Cartridges

44 MB	*$65.00*
88 MB	*105.00*

DAT

Model	INTL*	EXTL
APSDAT	$1599	$1699

2.6–5 GB Compression DAT

APSDAT	1299	1399

Desktop & Portable Units
Archive-basedMechanisms
**Quadra 900 and 950*

Digital Audio Tapes

Maxell 60-Meter	*$12.95*
Maxell 90-Meter	*16.95*

Displays

Model	
TriAm	$399

Full page, grayscale display

16 grays w/Macintosh si, ci and Quadra built-in video

256 grays w/Lapis card for SE/30, LC, Mac IIs.....$799

TEAC

155MB Tape Back-up	$499
600MB Tape Back-up	799

All tapes drives include Retrospect by Dantz Development

Toshiba

CD-ROM 3301B $599

Includes the five-disc APS Reference & Entertainment Library

• 30-Day Money-Back Guarantee • All drive products carry a 30-day money-back guarantee. Your risk in the transaction is the cost of shipping. • Disk-for-Disk Replacement Warranty • Maxtor, Quantum, SyQuest and DAT drives carry a two-year "parts & labor" disk-for-disk replacement warranty. WREN, Teac, Toshiba drives and SyQuest cartridges carry a one-year "parts & labor" disk-for-disk replacement warranty. Fujitsu drives carry Fujitsu's five-year warranty. • Prices & Specifications Subject to Change Without Notice.

• Brackets and Cables Included • All hard drives include brackets, cables, cords and LEDs required for operation in the specified Macintosh. All hard drives come pre-formatted with Apple's latest stable all-platform System software, 9.2 mb of compacted publicly distributable software, and APS Technologies' "ALLIANCE POWER TOOLS" SCSI formatter/hard partitioner • Toll-Free Technical Support • Toll-Free Technical Support, 9am to 7pm Monday – Friday, Central Time. As often or for as long as you need

M–F 7AM–9PM CST. SAT 10AM–4PM CST.
Visa/Master Card, Discover, American Express: No Surcharge.
APS Technologies, 2900 S. 291 Hwy., Independence, MO 64057
International: 1-816 478-8300. FAX: 1-816 478-4596 (24 Hours).
Toll Free UK: 0800-897-545. Australia: 0014-800-125-875.

1-800 235-2750

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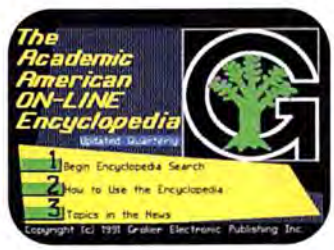
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CIRCLE 240 ON READER SERVICE CARD.

This Month on ZiffNet/Mac

ZMAC UTILITY

As any beautician knows, a little color can go a long way but a lot of color can be downright scary. Mac Makeover, this month's utility, takes the latter approach by giving you 16.7 million colors for dressing up your desktop.

Mac Makeover lets you choose an element of the Mac interface — menus, dialog boxes, scroll bars, or windows — and change the color. You use the Color control panel, which displays a color wheel, to choose from a potential 16.7 million variations. With so many choices, even the most subtle of designers may end up with a desktop that clashes, so Mac Makeover has a handy reset button that wipes out any changes you've made and lets you start from scratch. Mac Makeover is compatible with both System 6 and System 7.

Mac Makeover was programmed by developer Bill Monk, of Birmingham, Alabama. It is available exclusively on ZiffNet/Mac and, under the new membership fee, is available free for one month. Until November 25, 1992, type GO ZMC:POWERTOOLS. After that, find the file MACOVR.CPT in the Download & Support Forum (GO ZMC:DOWNTECH).

By Ben Templin

Hot Threads: Duos and Performas

The new Macs introduced on October 19 will be the hot topic on ZiffNet/Mac this month. You can expect to see expert commentary from *MacUser* editors on what the PowerBook Duos and consumer Macs will mean for individual users. Check out message section 9 in the MacUser Forum to see if these new computers are right for you.

Which Mac Should I Buy?, the *MacUser* expert system, has been updated to include statistics on the Duos and Performas. This HyperCard stack (developed by Danny Goodman) is available exclusively in Library 3 of the MacUser Forum. The filename is WCHMAC.SEA (GO ZMC:MACUSER).

Free (and Nearly Free) Files

Sysop Gregory Wasson presents a sampling of files recently uploaded to ZiffNet/Mac's Download & Support Forum (GO ZMC:DOWNTECH). The CompuServe filename and library are in parentheses.

Easy Envelopes+ (EASENV.CPT, Library 2), a DA for printing envelopes, lets you print customized addresses with graphics and postal bar codes. This updated file contains bug fixes. Shareware, $15.

Loan Calculator Spreadsheet (LCLC-E.SIT, Library 5) is handy for Excel and Lotus 1-2-3 users who want to take advantage of low home-mortgage interest rates. This simple calculator allows you to input two of three time variables: term (in years), payments per year, and number of payments. The spreadsheet computes the remaining time variable and payment info. A separate Excel spreadsheet for amortization schedules is also available. Search for both spreadsheets by using the keyword *loan*. Freeware.

MacConcept (MACCON.SEA, Library 1) is an amazing 3-D-CAD drawing program: It's amazing because this fully functional program is shareware and System 7- and Quadra-cache-compatible. You receive documentation after paying the $40 registration fee.

MacSokoban (MACSOK.CPT, Library 1) is a Macintosh version of an intriguing game from the UNIX world, called Xsokoban. The object is to rearrange a set of gold bags in a maze for each of more than 50 levels (it resembles Leprechaun in this respect). When you've solved all the levels, you win the game. With minimal sound and animation, the game relies on logic and careful planning instead of Ninja-fast reflexes. System 7-compatible but somewhat flaky on a Quadra. Freeware.

Pro Series (PROSER.SEA, Library 5) contains three professionally designed FileMaker Pro database files: Note Pad (which lets you store and manage text and graphics), Regional (a database of facts on all 50 U.S. states), and Phone Directory. Requires FileMaker Pro. Shareware, $20 per file.

Zync (ZYNC.CPT, Library 1) is a file-synchronization application designed for PowerBooks. It copies files back and forth between your PowerBook and a desktop computer. Not the best interface in the world, but it gets the job done. Freeware.



Figure 1: EasyPlay (EZPLAY.SEA, Library 1) is a slick 84K utility from Navigator's author, Michael O'Connor, that plays and catalogs QuickTime movies. Simply click on a movie "poster" in the EasyPlay catalog to play that movie. Each catalog can contain as many as 4,000 entries. Shareware, $20.



Direct Line

For many of you, mail order is your primary means of purchasing Macintosh products and services. That's why MacUser has put together the following special section.

It's what you've been demanding — a convenient place to quickly find the products you need from the vendors you want to buy from. MacUser's Direct Line to products is just one more reason to turn to MacUser for relevant information aimed at the serious user.

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FULL-MOTION VIDEO, CRISP DIGITAL SOUND.

VideoSpigot Turns Your Mac Into A Movie Studio!

REVIEWER'S NOTEBOOK: *Capture video from a camcorder, VCR or videodisc player and convert it to QuickTime™ format to play on your Mac. VideoSpigot™ delivers high-quality, 24-bit color digital-video movies, sequences, and clips. Smooth, lifelike video running at 30 frames per second — it's motion-picture quality! VideoSpigot opens the door to a world of possibilities. Audio and video are automatically synchronized for tight sound. Presentations, storyboards, training, education, and promotional materials explode off the screen! And because this is full digital video, you get unbelievably crisp detail and rich, luscious color.*



Put a video clip in a word-processing document to describe a procedure or explain a policy. Include video clips in your desktop presentations to add customer testimonials, video sidebars, building sites, and other additional information.

Add outdoor/location shots in presentations, create commercial "roughs," animated simulations, and other video productions. Include a "Message from the President" in your presentations. You can even put a video clip into a document — store it on an ordinary 1.4 MB disk — and send it off to a friend. Sight and sound made simple — with VideoSpigot and the power of your Mac — and your imagination.



Adobe Premiere™ $695.00
Apple® QuickTime $169.00

A $864 Value FREE!
With Every VideoSpigot

Make Movies On Your Mac! VideoSpigot is easy to use... installs in seconds. In effect, you simply "pour" digital video into your Mac. Then cut, copy, and paste just like any Mac file.

In addition, your video productions can be seen over a network. Distribute movies over a LocalTalk®, Ethernet, or Token Ring network.

It's an incredible piece of technology, designed to maximize QuickTime's video capabilities. In fact, VideoSpigot and Tiger include QuickTime FREE. Tiger also includes Adobe Premiere, the industry's hot new video editing program — it's also FREE! Together, they create the perfect QuickTime starter package.



Capture video from your VHS or camcorder.

An Historic Leap: Apple QuickTime. Everyone's talking about QuickTime, the new way to communicate ideas. By adding QuickTime's capabilities to your Mac, you can capture videos (using VideoSpigot) with crisp, digital sound, and mix them with other clips and add them to documents like ordinary text files! Cut, copy, paste, and share video clips and movies easily with any application that supports QuickTime.



With Adobe Premiere, you mix audio and video together with sleek, graphical controls, ready for QuickTime to play in a window on your screen. Just gather the various clips together and quickly arrange them in the order you'd like them to play. You can combine anything: video footage, audio recordings, live sound, animation, still pictures, and graphic designs. Adobe Premiere enables you to add transitions, dissolves, page turns, spins, and more. Superimpose images in background clips and work with a palette of fascinating special effects. Create anything from a formal address to a music video. Use tints, filters, gradations, and more...

Present your best ideas — with motion and sound — right on your Mac.

Quickly cut and paste audio just like text, record edit and mix music, voices and effects. Modify sounds with echo, reverb, filtering and backwards. MacRecorder Sound System Pro is like having a professional recording studio in your Mac.

ADDITIONAL BONUS!

With Pro Bundle — SuperMac Tool Kit

The SuperMac Tool Kit contains an exciting, interactive video demonstration of one of the hottest developments in the Macintosh market today — QuickTime moviemaking with the VideoSpigot.

THE TIGER VIDEOSPIGOT PRO BUNDLE



VideoSpigot™ NuBus $449.00
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Apple® QuickTime $169.00
MacRecorder® $349.00
Personna Micro Speakers $80.00
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A Complete Package Worth $1,771!

NOW JUST $529.90

The Pro Studio Bundle includes MacRecorder® Sound System Pro and a pair of booming Personna Speakers, over $1,770 in pro-quality audio/video hardware and software for just $529.90!

MacRecorder® Sound System Pro enables you to record, edit, and playback live or recorded sound on your Mac. Includes built-in microphone and external microphone jack. Add soundtracks, special effects, and voice-overs to your presentations. The right effect, well-placed, can make the difference! Record and produce your own radio commercials... An unbelievable value!

VIDEOSPIGOT

BCV2478A **Mac IIsi Model** **$359.90**
BCV2478B **Mac LC Model** **$269.90**
BCV2478F **Mac II** Family & Quadra™ (NuBus) . . . **$399.90**
BCV2991 **The Pro Bundle** **$529.90**
Includes the Complete Bundle Described Above.

VideoSpigot is a trademark of SuperMac, Inc.
QuickTime is a trademark of Apple Computer Corp.
Premiere is a registered trademark of Adobe.
MacRecorder is a registered trademark of Macromedia.



CD-ROM



THE CDR-73 $399

REVIEWER'S NOTEBOOK: *If you're ready to get into CD-ROM, Tiger has a spectacular offer on the fastest reader in the business. The NEC CDR-73 including the complete interface kit — for just $399!*

PhotoDisk 1100 Images. PhotoDisk delivers immediate and economical access to over 400 outstanding professional digital photographs. Each one ready to publish with virtually no use restrictions. Every PhotoDisk image is ready to be used instantly in advertising, newsletters, presentations, brochures, and multimedia projects.



Desert Storm: The War in the Persian Gulf. Chronicling the war and the events that precipitated it, this critically acclaimed CD provides you with news reports, eyewitness accounts, photos, sound recordings, detailed maps and more.

The Toolworks Illustrated Encyclopedia. Critically acclaimed and widely used, this title features the entire text of a 21-volume encyclopedia — stored on a single compact disc! The Toolworks Illustrated Encyclopedia allows searches by title, word, or phrase of the latest information on science, contemporary life, law, sports, and more.



Software Toolworks World Atlas. This title is an almanac, world factbook and atlas — all in one! It's a remarkable package that contains the most extensive collection of full-color maps you'll find anywhere. There's also plenty of data about each country and region: rainfall, population, industry, crime and more.

TIGER CD-ROM

NEC CDR-73

CDR 73 CD-ROM Reader
Including Complete Interface Kit $399.00

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World Atlas CD-ROM	79.95
U.S. History CD-ROM	395.00
Timetable: Science & Innovation CD-ROM	99.95
SuperMac Tool Kit CD-ROM	39.00
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TOTAL FOR REFERENCE KIT	**$2,947.60**

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BCV8273M **CDR-73 CD-ROM Reader**
Including Complete Interface Kit **$399.00**
BCV8396 **Tiger Reference Kit** with purchase of CD-ROM only **$199.00**

Free Lens When You Buy An NEC FG Monitor.

REVIEWER'S NOTEBOOK: *The advanced new line of NEC monitors is designed specifically for Macintosh users. They are magnificent, introducing flat-square screen, razor sharp resolution and rich color to the world. Faster, brighter screens are a must — without loss of focus. These features are available today from the NEC team of display researchers. The FG Series of monitors are packed with features, enclosed in a sleek cabinet that actually gives you more image area than conventional monitors. Each pixel is defined with unmatched clarity and saturated with color. No wash-out, no blur.*

Don't settle for less...



The NEC MultiSync 3FGx. The designers and engineers went crazy on this one, packing unparalleled features and performance into this amazing new monitor. Like the new NEC FullScan capabilities and larger screen sizes, where you can see up to 36% more active screen display — without distortion. Its 15″ screen is flat, and provides a high refresh rate. That means crisper images, brighter colors, richer tones and more contrast. You'll notice the difference immediately!

The NEC MultiSync 4FG. The 4FG revolutionizes monitors in one very important area: color accuracy. This new standard in video excellence is based on the concept of multiple-frequency engineering. And only NEC can do it. This revolution allows you to adjust colors to your preferences, or to match your printer's capabilities — even match Pantone and Trumatch colors! Like the 3FGx, the 4FG provides crisp images — 36% larger than conventional 14″ monitors!

NEC MONITORS

BCV8513 **NEC MultiSync 3FGx** 15″
w/Free Monitor Lens . . . **$689.00**
BCV8514 **NEC MultiSync 4FG** 15″
w/Free Monitor Lens . . . **$759.00**
BCV8516 **NEC MultiSync 5FG** 17″
w/Free Monitor Lens . . **$1279.00**
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w/Free Monitor Lens . . **$2329.00**
Monitors include connector cables and software.

Connect–Via Modem–To AppleTalk Or Ethernet Networks!

REVIEWER'S NOTEBOOK: *They like the way PowerBook users can now just "dial-in" to the network, as if they were right there in the office, and get what they need. They also like the fact that LanRover/L gives remote users full access to e-mail, provides complete data security and produces detailed reports.*

LanRover/L is a great value, enhancing the possibilities of ARA (AppleTalk Remote Access) with better control and management. And of course, there's no dedicated Mac. Everyone out there — working on PowerBooks — can be on the network by just dialing in. Access to just one computer in the office sometimes isn't enough to handle a problem or question from hundreds of miles away. With LanRover/L, it's really like being in the office.

For Ethernet, Shiva's NetModem/E is the industry's top-rated communications device, allowing dial-in, dial-out and remote routing for Novell NetWare and AppleTalk networks. Finally — fast, easy network access over ordinary phone lines. Also connects directly to the network with a dedicated Mac. Once connected, the user becomes a full network node with access to all network services and applications. Transfer files at lightning speed, perform Remote Routing and network administration, check your e-mail... Contains a dedicated communications processor; a high-speed modem with V.32bis and V.42bis support; and the built-in Ethernet interface. Supports communications with Macs and PCs.

LanRover/L. Pack up your PowerBook and head for the mountains! Get a nice little bed and breakfast with a spellbinding view and create an inspired report. With LanRover/L you can just dial-in to your AppleTalk network and begin working as if you were in the office! Full AppleTalk compatibility, for smooth, reliable access. Access file servers, bulletin boards, electronic mail and network applications.



SHIVA

BCV6588 **LanRover/L** For AppleTalk Only **$599.00**
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Available for Thin, Thick or 10Base-T Ethernet. Please specify.

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No Two Words In Our Language Mean The Same Thing. The art of written communication is more important than ever. The ability to create letters, reports, proposals and advertisements that rise above all of the bland, monotonous writing is a vital asset in today's business climate. Most often, saying exactly what you mean is simply a matter of finding the right words.

Why compromise your ideas by presenting them with overused adjectives or vague superlatives? You can add a grammar and spelling checker to your Mac to enhance the mechanics of your writing, but how do you inject enthusiasm and drama to your writing?

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Writers, speakers and journalists know the importance of a great "open." If you can catch the reader early, he'll stay with you. Word Finder Plus helps you write crisp, irresistible opening lines — and every line that follows.

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NEC'S CD *Express*–Complete CD-ROM For Beginners.



PUBLISHER'S NOTE: *We're proud to be among the first to introduce a new CD-ROM product from NEC — the CD Express.™ It features a new reader, the CDR-25. Light, solidly built and completely portable, the CDR-25 offers a low-cost entry into CD-ROM, and comes bundled with speakers and 10 interactive CD-ROM titles (worth over $1000). Great value!*

Titles include World Atlas, Great Cities of the World Vol. 2, Lucasfilm Game Favorites, The Family Doctor, Interactive Storytime, Publish-It! desktop publishing software, Total Baseball, Best Of The Bureau, The Manhole — an adventure game for children of all ages and Discis Books Aesop's Fables.

The perfect addition to your home system. You'll actually hear the characters speak with the speakers. This system is easy to install, requiring just a few minutes and you're ready to enjoy hours of fun with the entire family.

At just $429, this is the best investment you can make in your child's ability to learn — thousands of pages are contained on a single CD.

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BCV8625M **NEC CD *Express*** . . . $429.00

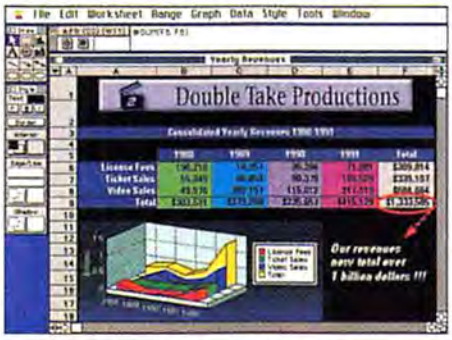
TRY LOTUS 1-2-3 FOR $99.95!

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REVIEWER'S NOTEBOOK: *The thoroughbred of Macintosh spreadsheets. Not a step-child of the original DOS product, Lotus 1-2-3 for the Mac has been designed from the ground up to exploit the power and flexibility of the Mac. Revolutionizing financial software with true 3-D worksheet capabilities: Excel doesn't have it, Claris Resolve doesn't have it. Fully featured, with System 7 support; completely customizable with desktop tear-off menus, most functions require just a mouse click. Excel users will be surprised at the power and grace engineered into Lotus 1-2-3 for the Mac. You also get a $30 rebate electronically deposited directly to your checking account.*

Lotus' deep understanding of advanced spreadsheet and financial modeling technology is present here. True 3-D worksheet management, incredibly nimble relational database power and easy-to-use formulas. Over 14 million people rely on the Lotus concept to create budgets, perform precise forecasting and instant analysis. Proposals and presentations ring with clarity with Lotus' financial graphs and tables. It's easy to edit cells, create graphs, and import data, using the same menus, tools and file formats across worksheets, graphs and macros.





You'll feel right at home with 1-2-3's menus, tools and working environment.

Using 1-2-3 for the Mac is fast and simple. It embraces new System 7 and provides the classic 1-2-3 menu for complete keystroke compatibility. We love the use of floating toolboxes and palettes, allowing customization of your workspace. Moving around is silky and streamlined, allowing you to quickly select ranges (before or after starting commands). You get in-cell editing and the ability to directly manipulate chart elements. You also get 256 colors, 49 different fill patterns and 230 line styles and thicknesses for use in your spreadsheets. Professional looking documents in minutes.

Graceful Worksheets. Includes swift queries (a particularly useful feature), an ever-active macro recorder (an incredible time saver!), and automatic compression routines for any printer. Lotus throws in a free copy of Adobe Type Manager.

With 1-2-3 for the Mac, complicated tasks, like consolidations, don't require tedious linking or endless dialog box activity, just a couple of mouse clicks is all it takes. Easily bring remote data right into 1-2-3 through DataLens and the Apple Data Access Language. Read FoxBase and dBASE files directly.

Lotus 1-2-3 for the Mac towers over the capabilities of Excel in a host of areas. Its ability to perform true 3-D functions is an enormous advantage. And the spectacular range of colors and graphic devices available within the worksheet. Excel doesn't allow pop-up functions or range names, Excel doesn't allow you to directly manipulate elements in charts, or perform in-cell editing.

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A $154 VALUE Free With Lotus 1-2-3.



LOTUS 1-2-3 MAC

1-2-3 Competitive Upgrade Including Full Package, Manuals, And Diskettes.
BCV2487 **1-2-3 Mac Trade Up** $129.95
Includes Free CheckFree and DynoPage
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1-2-3 Retail Unit For Any New User Not Upgrading From Another Spreadsheet
BCV2485 **1-2-3 Mac Retail** $349.95
Includes Free CheckFree And DynoPage.
Receive a $30 electronic rebate directly to your checking account from CheckFree making your final cost $319.95.

Learn To Play The Piano In 30 Days!

REVIEWER'S NOTEBOOK: *It seems like everyone is talking about the Miracle Piano Teaching System. It's been featured on "Good Morning America," "The Today Show" and "The Arsenio Hall Show." It's been written about in Newsweek and The New York Times. It's become popular because it really works — anyone, at any age — can learn to play piano and achieve musical literacy in just a very short time. More importantly, they can learn at their own speed, without formal lessons — by connecting the Miracle to their Mac.*

So how does it work? It's actually very simple. The Miracle software contains game-like exercises that make learning fun. Like the shooting range that knocks off ducks when you hit the right notes. You'll learn to play chords as parachutists jump out of a plane and learn melodies by repeating back what the Miracle plays. It's so much fun that you'll actually forget that you're learning. The next thing you know, you'll be playing your favorite songs. The Miracle provides instant feedback as you go, recognizing problem areas and bringing up specific drills to help you get it right. If you're struggling in a certain area, The Miracle continues to provide arcade-like lessons in that area until you get it right. It's not boring, tedious labor — it's actually fun. And that means faster learning and visible progress.



When you've mastered a specific skill, The Miracle quickly moves on to the next level, with new games, vivid new screens and new musical concepts.

If you love music, and always wanted to play the piano — here's you're chance. And it's never too late to learn with The Miracle, adults learn as quickly as children because they work at their own speed, building on skills quickly — on their own schedule. It's the power of your computer at work in an important role: learning.

TigerSoftware sweetens The Miracle's charms with a bundle that's simply unbeatable. You get the Miracle keyboard, software — plus the Miracle Song Collection so you can play along with your favorites from The Beatles, Michael Jackson, Buddy Holly, Lionel Richie, George Michael and more. We'll also include the Miracle Keyboard stand, stereo headphones and a free copy of TRAX, the advanced MIDI recording software that transforms your computer into a multi-track recording studio. With TRAX, you can record and mix multiple tracks, add additional instruments and effects, add vocals, change the tempo — and do it all from your keyboard. Record up to 64 tracks with a host of tape recorder-like controls. Compose and edit your own tunes by just cutting and pasting notes on your screen. TRAX is simple to use and delivers professional results.

It's everything we could possibly think of to compliment the Miracle's amazing capabilities. And it's all free from Tiger with The Miracle all for just $399.00.

The joy of making music... now you can experience that thrill with the Miracle Piano Teaching System, the world's most advanced multimedia training system.

The Only Self-Teaching Piano. The Miracle Piano Teaching System can teach anyone — child or adult — to play the piano with a series of progressive, customized lessons. The Miracle quickly connects to a Macintosh and includes software cartridge that combines an advanced MIDI keyboard with full-stereo sound and brilliant on-screen graphics. In no time at all, students of all ages will learn and perform left and right handed melodies — while having a lot of fun!

There are exercises, musical pieces and drills (cleverly disguised as games), that teach hand positions, notes, fingering, rhythm, scales and more. The Miracle can be quickly set up for any age or expertise, and customizes itself to move the user along at a comfortable pace. With The Miracle, you or your child can learn to play without the boring drills and monotonous practice that music usually requires.



THE TIGER MIRACLE PIANO SUPER BUNDLE

Miracle Piano Teaching System	$499
Miracle Stand	$35
Miracle Carrying Case	$50
Miracle Song Collection Volume 1	$40
Miracle Song Collection Volume 2	$40
Trax MIDI Studio Software	$100
Trax MIDI Song Collection	$50

Total Value $814 On Special For Only $389

MIRACLE

BCV2877 **Miracle Piano Mac Super Bundle****$389.00**
BCV3877 **Miracle Piano PC Super Bundle****$389.00**
Available for Macintosh, Nintendo and DOS. Call for other models.

TROUBLESHOOT HARDWARE, AVOID LETHAL FAILURES.

REVIEWER'S NOTEBOOK: *Straight from a leading Apple-Direct Repair Center comes a new diagnostic tool no Service Technician or advanced user can do without: MacEKG. This vital instrument actually tests video chips, memory chips, keyboard/mouse chips and numerous other hardware components inside your Mac. MacEKG seeks out weak links before they grow into major headaches. Nothing else on the market touches this area of Mac hardware diagnosis. And no one responsible for a healthy Mac should be without it.*

For Mac users who want their machine in top condition, there are a few valuable utilities that are vital. Norton Utilities is a must for disk drive problems. Symantec Anti-Virus is excellent at viral protection. Speed Disk (part of Norton) keeps your disk free of fragmentation. Help! is superb at locating conflicting software applications and versions. And now the missing link — hardware diagnosis — joins the league of mandatory Mac utilities.



MacEKG tests individual hardware components to seek out possible faults — before they become major problems. The VIA (Versatile Interface Adaptor) chips handle all user input like the mouse and keyboard. A faulty VIA can cause inconsistent cursor movement, and if allowed to get worse, complete system shutdown.



If EKG detects a substantial decrease in performance, it directs you to the offending part. This is what a technician needs to know to repair a Mac.

Just like a real EKG machine, MacEKG analyzes and gives you a visual indication of your Mac's pulse. Hundreds of different aspects of your machine are dissected, inspected, tested and verified for 100% accuracy.

Even non-technical users' can understand the graphic summary report. Vertical bars measures your Mac's overall performance, letting you know if it's better or worse than yesterday. Simple troubles like inconsistent cursor movement can come from hardware chips on their way out. MacEKG will isolate this minor fault before it turns into a system-stopping disaster!

Not only hardware components, but also software inits in your Extensions folder come into play. How much speed are you giving up for that new application? MacEKG will tell you exactly.

You can run a series of tests and get immediate, understandable results on what's going on and what's going wrong. MacEKG watches your system with a set of features that used to be available only to Authorized Apple technicians. Moreover, some of the routines included in MacEKG are not available anywhere else.

Let MacEKG handle the technical stuff. It quickly learns your system and performs a carload of tests — everything from logic performance, RAM stability, video processing, integrated circuit integrity, media verification and overall system health. It analyzes what it finds and provides you with a "dashboard" of your system.



EKG

BCV2920 **Mac EKG****$99.90**

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TIGERSOFTWARE

GUARANTEED LOWEST PRICES
ON ANY MACINTOSH PRODUCT

The WriteNow Hot-Pack!

REVIEWER'S NOTEBOOK: *WriteNow is the word processor Mac aficianados swear by — it's fast, compact (requires just 325K), reliable, and brimming with great new features that give every document that you create an absolutely stunning look. NEW! Paragraph and character style sheets help you create a clean, consistent look. NEW! An incredible print preview that displays thumbnails and facing pages — optimized for your particular screen's size. NEW! Color text and graphics, along with new styles and graphics capabilities. NEW! One-step default document creation — just throw in the text and out comes a masterpiece.*

If you're a Word user, just try WriteNow 3.0 and see what you're missing. From page layout and design, graphics and document management to printing, System 7 support and great style sheets. It just feels so nice. The columns snap to attention as you enter text, the headers and footers pop into exact position, the formatting and style sheets are crisp and professional — and WriteNow contains a giant 1.4 million-entry thesaurus, a 135,000 word spelling dictionary with ultra-convenient Auto-Find and Auto-Guess spell checking. WriteNow is compatible with other leading applications such as Microsoft Word, Works, MacWrite and WordPerfect (For DOS). There's more new stuff: lightning-fast scrolling for easy movement throughout your documents, unlimited paragraph and graphic sizes, triple-click paragraph selection, style sheet design templates, virus alert and more.



WriteNow is perfect for everyday letters, memos and reports. Easy-to-understand menus are the key.



The Lean And Mean Word Processor. WriteNow has swept the industry, collecting Editor's Choice awards and other top honors. Known for it's incredibly swift performance and compact size. But despite the lack of size, WriteNow contains a complete set of state-of-the-art features. Everything you need is here — with powerful new page design features (that you'll actually use) to create great looking letters, memos, reports, presentation handouts and more. The print quality is excellent.

Great Looking Print Preview! The print preview is remarkable, featuring optimized thumbnails, multiple page viewing, facing pages (reader spreads), and speedy magnification.

ONLY FROM TIGER!

THE WriteNow "HOT-PACK" Bundle!

Only Tiger can assemble a sizzling offer like this! Award-winning WriteNow 3.0 is joined by four great software titles — each best-sellers in their own right. First, you get Fax Mania — it includes scores of high-quality, professionally designed fax cover sheet templates. There's one for every mood, event, occasion and situation. From formal to freaked-out! — it's a $39.95 value. Then there's Grammatik, the trusted grammar and style checker that gives your writing clarity and power. Easy to learn and use, you'll notice an improvement the first time you use it — a $99 value.

Record Holder Plus is the sleek, simple-to-use data manager that enables you to organize, store, retrieve and report information. It's a snap to put your information to work; let Record Holder Plus take care of it — a $145 value. To round out the Hot-Pack Bundle, we've included MacMoney, the fast, easy — yet extremely powerful accounting program specifically designed for the needs of home and small business. Point-and-click operation makes organizing your finances a breeze. Includes excellent reporting features and data entry.

The WriteNow Upgrade

HOT-PACK BUNDLE

WriteNow 3.0	$249.00
Mac Money	$119.95
Record Holder Plus	$145.00
FaxMania	$39.95
Grammatik Mac	$99.00

A Software Bundle Worth $652.90!

NOW JUST $99.90

WRITENOW

BCV2966 **WriteNow 3.0 Upgrade "Hot-Pack" Bundle** **$99.90**

BCV2967 **Retail Bundle** **$179.90**

263 Display Typefaces And 100 EPS Borders: $99.95

REVIEWER'S NOTEBOOK: *What's wrong here? Was that a typo in the headline or has Tiger Software lost their minds? No typo. No mind loss. Just a great value on a complete (and we mean complete!) library of 250 Type 1 or TrueType display faces for use with any application that supports PostScript or TrueType — and that means just about every Mac application known. Includes screen fonts as well as printer fonts. Why pay more for foundry-quality type? Especially when you get these great collections of Ed Benguiat headlines and EPS borders free?*

Display typefaces — designed to attract attention to whatever you have to say. Take advantage of FontBank's staggering array of quality fonts at down-to-earth prices. 263 display typefaces and 100 EPS borders for just $99.95!

You'll create attention grabbing documents and eye stabbing graphic elements for any graphics program and desktop publishers. With such a wide variety of faces available to you, creating incredible headlines is fact, fun and amazingly professional. The headline is the face of good advertisements. Wimpy headlines are usually ignored, while bold headlines attract the reader, and if your message is important, the casual reader becomes curious — and persuaded. Remember, though, that headlines must be legible. If you'd like to know more about working with display faces and creating winning headlines, call TigerSoftware and ask for a free copy of a 24-page book that we've prepared entitled "A Short Course On Working With Type." It has been prepared by the typographers at Tiger and we'd be happy to get one in the mail to you.

FontBank has assembled a vast array of looks and feels in their type library. 250 different faces, each with its own distinct character. Some you may never have seen before. Combining FontBank's 250 faces with the capabilities of these programs offers the opportunity for an unlimited number of special effects. And FontBank display faces are compatible with all major page layout and graphics applications like QuarkXpress, PageMaker, Illustrator, FreeHand and ATM. And, when converted to editable outlines using Illustrator or FreeHand, these faces can be used to produce special text and design effects.

Borders Complete Your Layout. Often the only thing between you an an attention getting layout is the lack of some visual ornament to pull it all together. Usually the answer is a border. But how many of us have the time to draw a border as the clock moves ever closer to the deadline hour?

Recognizing that need, FontBank has introduced BorderBank, a collection of 100 imaginative, attention-arresting borders in EPS (Encapsulated PostScript) format.

The designs run the gamut from the traditional to cutting-edge contemporary. And using them is as simple as placing any graphic within your page layout or drawing program. Since they're EPS graphics, they proportion perfectly to whatever area you assign them to.

And they're yours free when you purchase the FontBank type Companion.

FREE! 100 EPS BORDERS $149 VALUE

No question about it: borders add excitement to your layouts. Order the FontBank Type Companion and get the collection of 100 EPS borders designed by DTP guru T. Craig Smith FREE! They are compatible with all page layout and most drawing programs.

Tiger Special Offer

FREE! Send in your FontBank registration card and get these 13 Photo-Lettering, Inc. Faces FREE! Chosen and edited by world renowned type designer Ed Benguiat. Also available separately for $9.95.

Swinger
Westerveldt Light
PUBLICITY GOTHIC
LATIN Elongated
PRISMA GRAPHIC
BONAparte
WALNetto Casual
Brazilia Bold
BENGUIAT Laurent
Fourth of July
DECO Geometric
Flair Bold
WEST Palo Alto

FONTBANK

BCV2425 **FontBank MAC**
With Free BorderBank **$99.95**
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CIRCLE 139 ON READER SERVICE CARD.

THE BEST DISKETTES MONEY CAN BUY.

REVIEWER'S NOTEBOOK: *We wanted the highest quality, most durable, longest lasting, best diskettes and tapes for our TigerSoftware catalog. So we shopped, and compared, and tested... until we came to a unanimous conclusion: Fuji is Number One. Their 30 years of excellence in the recording products industry has led them to the forefront of computer media technology. Their extensive research and development has culminated in unique patents and designs that no one else has. Their dedication to the future has resulted in new recording media products years ahead of the competition.*

Here at Tiger we believe that storage and backup media has to be the best. Second rate just won't do. When it comes to priceless data that's irreplaceable, who could consider otherwise? That's why we'll only sell the best — Fuji.



Fuji diskettes have the highest quality available: tested for 20,000,000 passes with no surface deterioration. That's over 500 times a day for the next 100 years!

Fuji's advanced and exclusive binding system virtually eliminates magnetic media flake-off. Their superior jacket liners are incredibly fine, with special weaving that actually cleans the diskette recording media while you use it. The labels have a special adhesive so they'll never come off in your drive. Even the sleeve is specifically made to protect the diskette from contamination and static build-up.

From the patented Cleaning System to the brilliant, color-coded Rainbow Packs, Fuji leads the way with reliable, durable diskettes. Perfect for the Mac, Fuji 3.5″ diskettes come both unformatted or pre-formatted.

Fuji's unique MD (Minimized Debris) Cleaning System (patent pending) guarantees top performance by protecting from dust and foreign particles. That's crucial for today's on-the-road laptop and notebook computers. Fuji built special "dust rooms" for rigorous testing under gruelling conditions to ensure the MD Cleaning System is Number One under the Sun.

For the recording medium itself, Fuji introduced Beridox Hyper HD technology. These extremely fine magnetic particles provide the highest standards of recording excellence. Especially developed by Fuji, this high-reliability recording medium delivers exceptional output stability under the harshest environments.

Double Density 3.5″ Diskettes. If you have a standard Mac 800 KB drive, these are the diskettes for you. Packaged in convenient 10-diskette packs, Fuji diskettes are the best money can buy.

The MF2DD Rainbow Colored 3.5″ diskettes come in a five-color pack (2 diskettes for each color). This color-coding is great for quick identification of data, applications or users.

If you use lots of diskettes, save money by buying MF2DD diskettes in the efficient 100-Pack. We've found that people who buy the 100-Pack only buy Fuji, because they're the kind of people who save their backups years into the future. And they know Fuji is the name to trust.

High Density 3.5″ Diskettes. If you have a Mac SuperDrive, this is the diskette of choice. The Mac will format the MF2DD 3.5″ diskette for 1.4 MB.

The MF2HD Rainbow Pack comes in five colorful variations (2 diskettes for each color). You get green, blue, gray, yellow and red. This convenient color-coding is great for quick identification of data, applications or users.

For volume users, the MF2HD 3.5″ diskettes are available in 20, 30 and 50 pack sizes.

Fuji also offers a wide variety of tape cartridges. Fuji's data cartridges have the lowest error count in the industry, and come in 4mm, 8mm and 1/4″ sizes. Call Tiger for information.

FUJI

BCV7366 **MF2DD 800K** 10-Pack	**$8.00**
BCV7368 **MF2DD Rainbow 800K** 10-Pack	**$9.00**
BCV7369 **MF2HD 1.4MB** 10-Pack	**$14.00**
BCV7371 **MF2HD Rainbow 1.4MB** 10-Pack	**$15.00**
BCV7372 **MF2HD 1.4MB** 20-Pack	**$26.00**
BCV7373 **MF2HD 1.4MB** 30-Pack	**$37.00**
BCV7351 **MF2HD 1.4MB** 50-Pack	**$59.00**
BCV7352 **MF2DD 800K** 100-Pack	**$69.00**

Pre-Formatted available. Just ask.

ADD SIX SERIAL PORTS — INSTANTLY!

Connect And Control Modems, Printers, Networks, Peripherals And Other Serial Devices. Hardware And Software Included.

REVIEWER'S NOTEBOOK: *One of the most useful new ideas in computing — Enables you to control — from a software interface — up to six serial devices. (Macs only come with 2 — Printer and Modem.) It's like adding six serial ports to your Mac (in fact, we found that it's almost like having TWO computers). Configure your equipment any way you like: One Mac to six devices; One Mac to five networks or four Macs to two devices. A snap to install, simple to operate and fully System 7 compatible — with a full two-year warranty on everything.*

So forget changing cables, swimming through wires and fiddling with A-B switches (those things can actually cause system freeze-up!). Now you simply pop up the MultiPort screen, select the port you want to use from a graphical on-screen diagram — and you're done. Choose from six serial ports and five ADB ports — a total of eleven! The LED lights on the MultiPort unit indicate the port selected and your INIT installs setups for specific situations, each time the Mac is started. There are dozens of possibilities for the MultiPort, like using it "inside out" to allow up to 4 Macs to share two non-LocalTalk devices. You can even have more than one mouse connected to your Mac; your standard Mac mouse for normal use, and a trackball-type mouse for graphics and publishing work.

A must for the Mac user performing multiple tasks and working with assorted equipment. Everything you need to get going is included: controller box, detailed user's guide and accompanying software. Runs off of ADB power, no power supply is needed to operate the MP-91.



Software-Controlled Ports. This compact little device — about the size of a paperback book — is the answer to connecting extra serial ports and controlling them on your Mac screen. Simple controls allow you to just click to select a port — or to invert the Port in-out lines, or port character-printer or modem. The MultiPort MP-91 is the ideal Desk Accessory that's guaranteed to save you hours of time switching cables, running and re-running wires. It's the easiest system available for multiple port switching.

Here Are The Installation Instructions. The MultiPort MP-91 simply plugs into the printer, modem and ADB sockets on the back of your Mac. Your add-on equipment (printers, modems, scanners, etc.) are plugged into the MP-91. A software Desk Accessory goes into the System. That's it.

That Was Fast... And using the MP-91 is even faster! All the selections you make are handled by the software, so there's really no need to touch the MP-91 again. Just tuck it away and enjoy its ingenious functionality. Our "Printer Sharing Test" saw connections of: Four Macs to one ImageWriter; Two Macs to two LaserWriters and two ImageWriters — and a modem; even One Mac connected to two LaserWriters, 1 ImageWriter on LocalTalk, a modem and a scanner.

MULTIPORT

BCV2785 **MultiPort MP-91**	**$189.90**

Two Years Warranty On Everything.

Adobe Illustrator, Streamline And ATM: Just $399.

ADOBE ILLUSTRATOR: A slew of impressive industry awards grace the Illustrator box, a clue to the amazing capabilities you'll discover inside. Indeed, Adobe Illustrator is the most powerful drawing, page design and production tool in the world today, ideal for designers with a desire to elevate their work to a new vista of speed and creativity. It's the only system capable of precise illustrations, extensive text handling, fully automatic graphing and color separations. You can work from existing images if you like — just scan it and you're ready to begin. Or draw from scratch using Illustrator's magnificent set of drawing tools, the envy of the industry. It's as simple as moving the mouse.

Professional pages depend on the ability to handle text in a variety of ways. (This package includes free Adobe Type Manager and 13 type faces). Nothing allows more creative opportunities than Adobe Illustrator when it comes to integrating text with your designs, illustrations, line art, images and photos. Just enter your text on screen, or quickly import it from your word processor.

Create tight wraps around shapes (or any path, like circular type) and images, viewing your alterations on your screen as you work. Flow text between columns, add unlimited numbers of characters and styles from any PostScript Type 1 font (including the entire Adobe Type Library). You can even convert the type to outline images and then edit them.

Creating charts is a snap with Illustrator. Just type in your data, select a chart type and it's done. Customize your charts with your palette of creativity and revise them in just a few seconds. You'll create top-notch ads, brochures and more, from concept to final production and color separations. In fact, the Adobe Illustrator box was completely created using the product. Color capabilities include smooth 24-bit screen reproduction (8-bit is supported for B&W).

ADOBE STREAMLINE. Producing high-quality PostScript artwork on a Macintosh has never been easier — provided you have the right tools. Adobe Streamline software is one of those tools. In fact, it's the easiest way to guarantee you'll always have PostScript quality, no matter how you start.

The Adobe Streamline software is a computer graphics tool that literally *streamlines* the production process by converting high-resolution bitmapped images (from existing files, scanned black and white line art, or continuous-tone images) into Encapsulated PostScript, PICT, DXF or Adobe Illustrator files. You can convert one image at a time, or quickly convert an entire folder of images in batch mode.

Once you've converted the images, you may use them as-is, export them to your favorite page layout program, or modify them in a drawing program such as Adobe Illustrator — saving you hours of tracing and copying by hand. That's why Adobe Streamline is the perfect tool for technical illustrators, destop publishers and graphic artists.

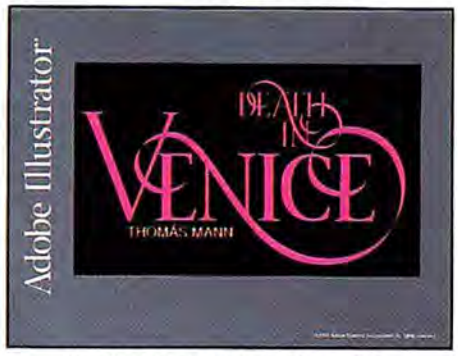


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Great illustrations with precise details.



Incredible typographic illustrations are fast...

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Illustrator 4.0	$595.00
Streamline 2.0	$195.00
Type Manager	$99.00

A GRAPHICS BUNDLE WORTH $889
For Just $399

ADOBE
BCV2960 **Illustrator 4.0** with Streamline 2.0 and Type Manager . **$399.00**
Mac with hard disk; minimum 2MB RAM for System 6.0.5 or greater — 4MB RAM for System 7.

ADOBE PREMIERE 2.0! UPGRADE NOW FOR: JUST $149

REVIEWER'S NOTEBOOK: *In addition to the two industry standards reviewed on this page: Adobe Illustrator and Adobe Streamline, TigerSoftware is proud to be among the first to offer new Adobe Premiere Version 2.0, an incredible new title that allows you to combine video footage, audio, animation, still images and graphics to produce digital movies on your Mac. Uses Apple's QuickTime media-integration technology, so multi-unit production hardware isn't required. Adobe Premiere is fast, fun and yields high-quality results. Interactive presentations, television ad concepts and roughs, video databases, merchandising sequences and training sessions are just a few of the wide-ranging uses for this hot new title.*

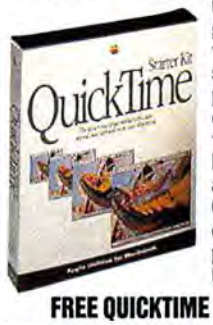


Become a movie maker — with the help of your Mac — and new Adobe Premiere. It's the newest creative tool from the leaders in precision graphics and photo manipulation. It's fast, easy and fun to use — just gather your clips and arrange them in the order you want them to play and Premiere handles the rest with blazing speed.

Premiere utilizes the Apple QuickTime extensions to store and import your video and audio files. You can arrange your clips to appear in progression with simple cuts, or overlap them to create dramatic transitions like dissolves, page turns and spins. You can isolate areas of your moving video or still images and superimpose them onto other clips to create a wide range of special effects that will grab your audience like nothing else they've ever seen.

You can use plug-in filters (including Adobe Photoshop-compatible filters) to produce tints, distortions and replications. Using Apple's QuickTime extensions, you get the enormous capabilities of true media integration — and now, you can produce digital movies at an affordable price, for a variety of uses. And with QuickTime, you can store video footage and accompanying audio on an ordinary disk drive.

Premiere acts as the control room for your movie studio. From its intuitive interface, you'll see the tracks of your movie in "filmstrip" style. And if you need to make a change, multiple windows provide you with fast access to any editing function. Want to add an effect? Just click any one of the animated icons to select great digital effects. The video windows on your screen also enable a quick preview of source material, digital effects and assembled video. There's even a Timeline display with zoom-in and single-frame viewing. Quickly check your sequences with Premiere's push-button controls, move to any clip instantly.



FREE QUICKTIME INCLUDED–A $169 VALUE

NEW ADOBE PREMIERE 2.0
BCV2961 **Premiere 2.0 Upgrade** **$149.00**
BCV2962 **Premiere 2.0 Retail** **$499.00**
Mac II family computer; 4MB RAM; high-capacity hard drive (80 MB or more); System 6.0.7 or greater; 32-bit QuickDraw 1.2 or greater.
Restrictions apply to upgrade. Call for details. While supplies last.

SCANMAN 32

WITH DIGITAL DARKROOM AND CATCHWORD PRO: ALL THREE JUST $399

REVIEWER'S NOTEBOOK: *The ScanMan Bundle begins with the instrument itself: the Logitech ScanMan 32 grayscale scanner. It's a marvel, packed with technical innovations and crafted into a rugged, ergonomic housing. The scans? Crisp. Clean. Perfect...*

We put the ScanMan 32 hand scanner through it's paces, performing over 50 scans of various black and white images — photos, line art, logos, type, illustrations — even poor-quality photos. The ScanMan 32 features 32 gray scale performance. Use scanned images in word processors, multi-media, desktop publishing, HyperCard, OCR and more.



The Science of Scanning. Logitech technology destroys the old barriers of scanning, increasing the speed and accuracy of anything you scan. Superior image quality, with the ability to produce halftones for reproduction. The set of output controls provide the best possible results on any printer or monitor screen. Its 4″ wide scanning area allows full-page scans with just two quick passes.

The instrument itself is a masterpiece. From the genius of the respected industrial design firm, Frogdesign — also responsible for the new line of NEC monitors and other distinctive hardware products, the ScanMan 32 is magnificent.

CatchWord Pro Included FREE!. CatchWord Pro delivers powerful Optical Character Recognition (OCR) software that captures printed, hard-copy data by scanning it, rather than typing it.



Incredible grayscale images right on your screen!

CatchWord Pro delivers an amazing 99% accuracy in OCR testing, used in tandem with the ScanMan 32. It's compatible with popular word processors, spreadsheets, databases and desktop publishers — so you can scan information directly into your application and use it immediately!

Digital Darkroom Included FREE!. Digital Darkroom from Aldus is the most complete grayscale image processing software for retouching, enhancing, composing, and modifying scanned photographs and other bitmapped graphics on the Macintosh.

THE SCANMAN 32 BUNDLE

ScanMan 32 with
CatchWord Pro $599.00
Aldus Digital Darkroom $395.00

A Scanner Package Worth $994.00

FOR JUST $399

BCV2977 **ScanMan 32 Bundle** with FREE CatchWord Pro & Digital Darkroom **$399.00**

Call for system requirements.

The Radius Rockets

Make Your MacII Faster Than A Quadra!

REVIEWER'S NOTEBOOK: *Radius has always been on the lips of art directors, designers and studio producers who use Macs. For years, the creative community has turned to Radius to speed their work and enhance their creativity. As an authorized Radius dealer, Tiger presents The Rockets: advanced Motorola 68040 processing power at a new lower price.*

The Radius Rocket Accelerators provide lightning quick speed for Mac page layout and publishing applications. The Rocket 25 straps on 25MHz processing capabilities and includes a math co-processor. The Rocket 25i is a more affordable accelerator, but without a math co-processor. Then there's the Rocket 33 — featuring the fiery rage of Motorola's 33MHz 68040 processor.

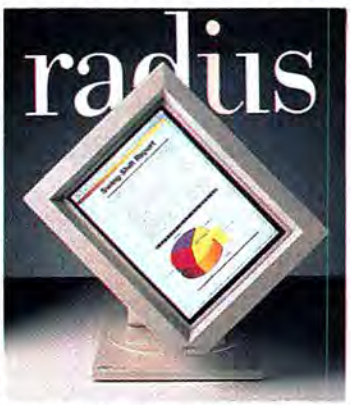
The Rocket 33 clocks in at over 32% faster than the Quadra 700 upgrade's 25MHz "040." (COMPARE VALUE! The Rocket 33 is over 32% faster than the Quadra 700 upgrade and is hundreds of dollars less!) The Rocket 33 is the right board for 3-D modeling, popular animation applications, publishing and image processing programs.

RADIUS ROCKETS

BCV2781 **Rocket 25 Accelerator** **$1799.00**
BCV2780 **Rocket 25i Accelerator** **$1349.00**
BCV2782 **Rocket 33 Accelerator** **$2199.00**

Buy A Color Pivot, Get A $599 Color Display Card Free!

REVIEWER'S NOTEBOOK: *The revolutionary Radius Color Pivot Display is the only monitor that works the way you do — in both portrait and landscape modes. See a full page without scrolling. A spectacular value! And for a limited time, Tiger will throw in the Color Pivot video interface card, a $599 value — FREE!*



The immortal Radius Color Pivot. The only monitor in the world that can display a full page in color and pivot to display a full page landscape too! Ask a pro how much easier that makes his life. Now your Mac can have this freedom.

The Color Pivot is perfect for design professionals and advanced desktop publishers, but it's also an ideal upgrade for everyday use, especially if you're "in and out" of a variety of applications. Just pivot to see as much of the screen as you need. And it is an excellent value. Consider this — the only other way to see a full page in actual size without scrolling would be to buy a 19″ or larger display — many hundreds of dollars more than the Color Pivot!



Team the Color Pivot up with a Radius video interface and you get an unbeatable duo. 256 vibrant colors on any Mac LC, SE/30, IIsi and all NuBus Macs.

So, if you need a color display solution, you can spend $2298 on a landscape display system from Apple. Or for only $879, buy the Color Pivot, and get both a portrait and landscape display in one for about $1419 less. How's that for value?

RADIUS COLOR PIVOT

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2. Your primary job function is: (check one)
☐ 01) Administrative/ General Management
☐ 02) MIS/DP, Communications Systems, Programming
☐ 03) Engineering/F&D
☐ 04) Finance/Accounting
☐ 05) Marketing/Sales
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3. For which of the following products are you involved in selecting brands/models to be bought by your company or organization? (check all that apply)

4. Which of the following products have you bought in the last 6 months? (check all that apply)

SOFTWARE	Q3	Q4
Accounting	☐ 01	☐ 01
Spreadsheets	☐ 02	☐ 02
Project Managers	☐ 03	☐ 03
Word Processors	☐ 04	☐ 04
Database Managers	☐ 05	☐ 05
Graphics	☐ 06	☐ 06
Integrated Software	☐ 07	☐ 07
Communications	☐ 08	☐ 08
Utilities	☐ 09	☐ 09

HARDWARE	Q3	Q4
Modems	☐ 10	☐ 10
Scanners	☐ 11	☐ 11
Microcomputer	☐ 12	☐ 12
Printers/Plotters	☐ 13	☐ 13
Monitors/Displays	☐ 14	☐ 14
Storage	☐ 15	☐ 15
Add-in Boards	☐ 16	☐ 16
Networking	☐ 17	☐ 17

5. If so, what function do you serve in the buying process? (check all that apply)
☐ 01) Initiation/ Determine Need
☐ 02) Selection of Brand and Model
☐ 03) Selection of Source
☐ 04) Authorization
☐ 05) Other

6. Over the next 12 months, how much will your organization spend on computer products or services? (check one)
☐ 01) over $5 million
☐ 02) $1 - 5 million
☐ 03) $500,000 - $999,999
☐ 04) $100,000 - $499,999
☐ 05) $50,000 - $99,999
☐ 06) $10,000 - $49,999
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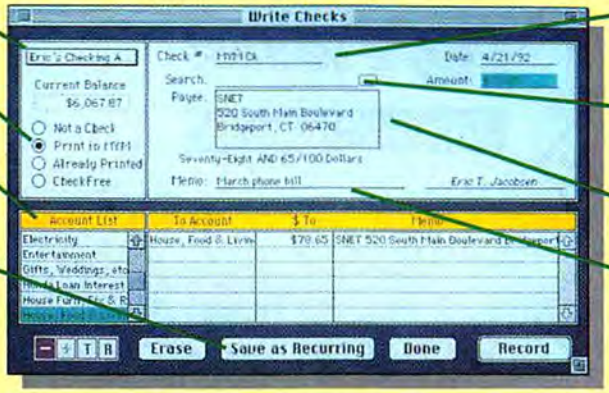
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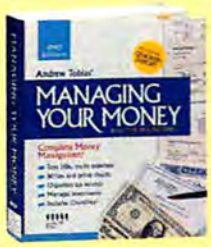


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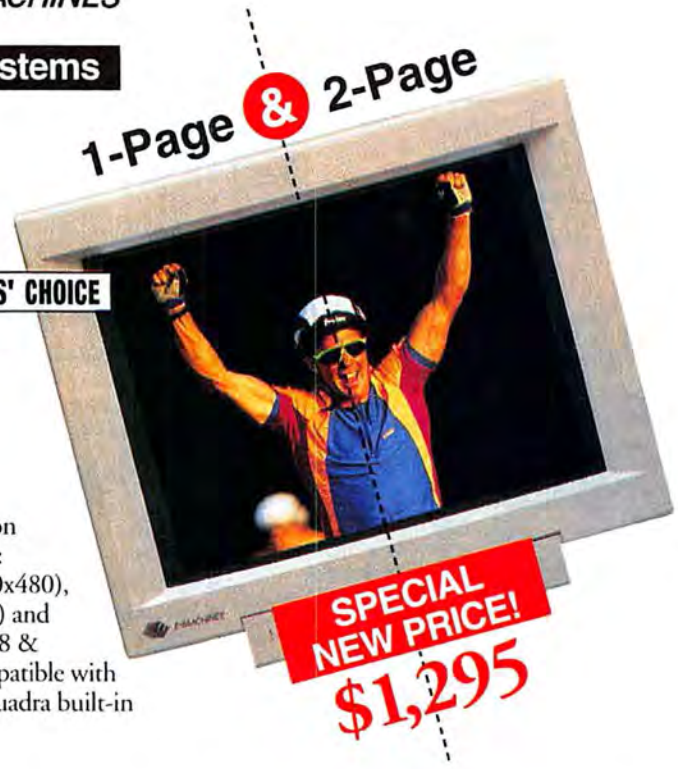
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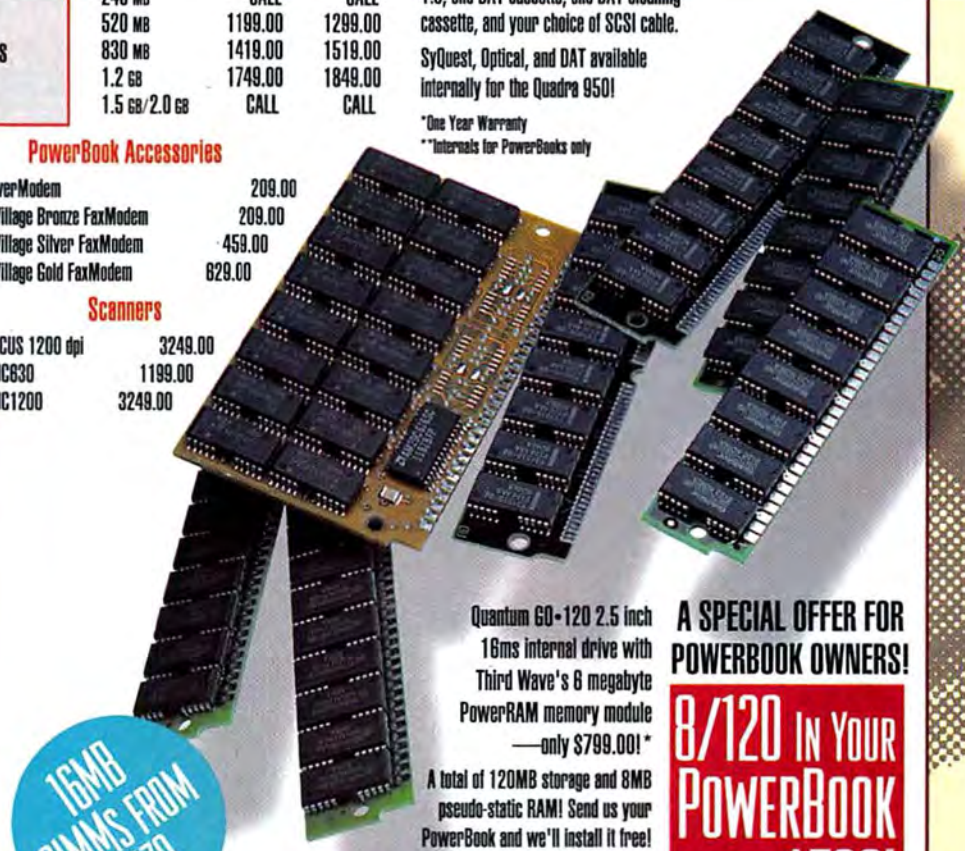
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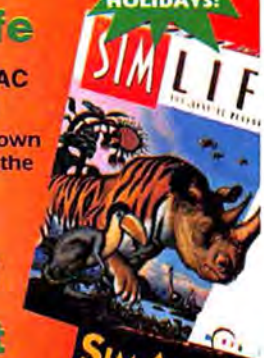
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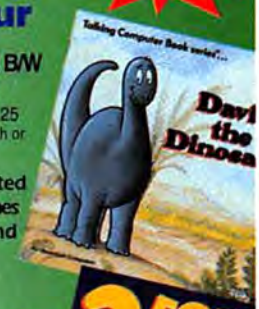
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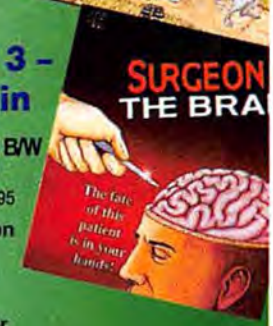
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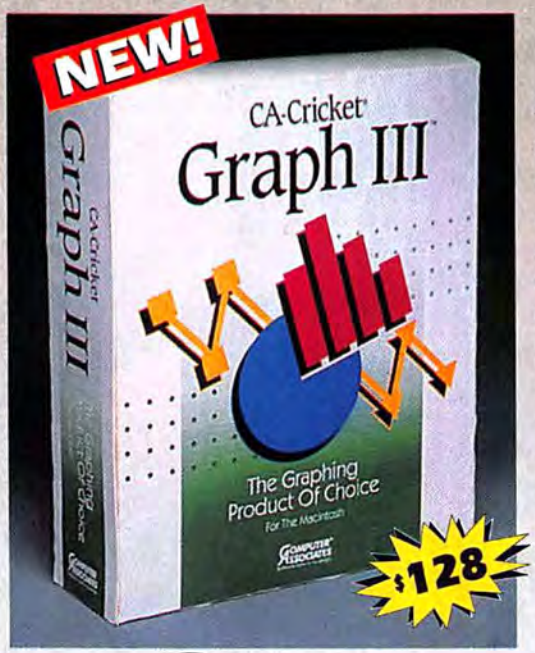
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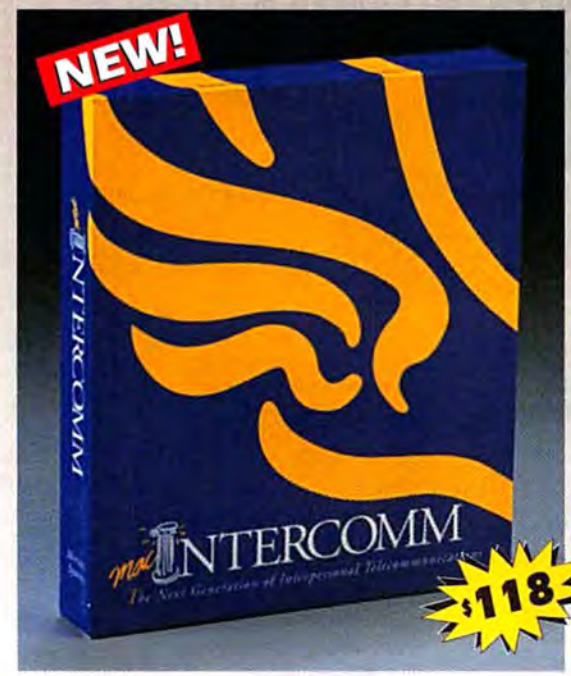
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7 4990 Premier 2.0 448.
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7 4183 PhotoDisc Vol. I-CD 278.
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7 3824 ScanMaker II Call.
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7 2179 Ethergate 1289.
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7 4156 Spectrum/8•24 PDQ 898.
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7 4169 Plat. 21" 2-Page 1138.
SuperMatch Color Monitors
7 4167 17" Multimode Color 1268.
7 4163 20" Dual-Mode Trin. 2698.
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7 4149 Spigot & Sound Pro NB 1698.
7 4147 VideoSpigot Pro si 1348.
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7 4017 V.32bis MacPac 378.
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7 3653 LightningScan Pro 256 489.
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7 3031 Electro Static Firm 836.
7 3032 Electro Static Soft 836.
7 3030 Standard Firm 758.
7 3029 Standard Soft 758.
6 X 9 Digitizers w/Cordless Stylus
7 3028 Standard Firm 518.
7 3027 Standard Soft 518.

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External Hard Drives
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7 4202 DP+ 425-MB Quantum .. 1298.
Removable Syquest Hard Drives
7 4197 DP+ 44-MB w/cart. 508.
7 4198 DP+ 88-MB w/cart. 698.
Iomega
7 3040 Interface Kit Call.
Bernoulli Drives
7 3501 Transportable 90 PRO 698.
Bernoulli Media
7 3531 90-MB Cart. 139.
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UTILITIES

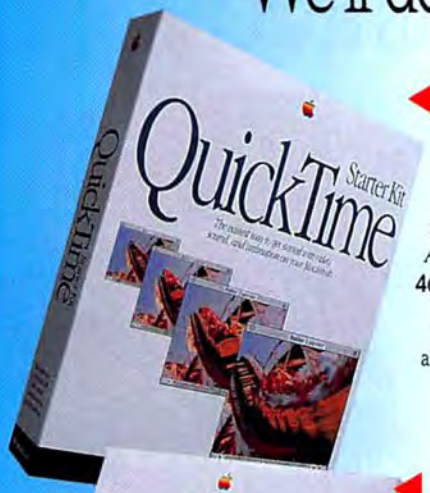
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7 4642 Disk•Go 45.
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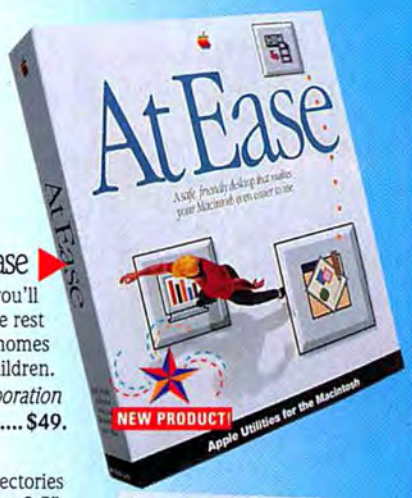


QuickTime Starter Kit

Includes everything you need to get started with QuickTime – the QuickTime INIT, Movie Player, Movie Converter, PICT Compressor, and a CD-ROM full of QuickTime movies you can integrate into your work. Also comes with a full manual on using QuickTime.

Apple Corporation

4608 QuickTime Starter Kit $158.



At Ease

New! Put your mind at ease. You choose which applications you'll allow others to access and put them on the At Ease desktop. The rest of your hard disk is protected by a password. Great for homes with computers and children.

Apple Corporation

5247 At Ease $49.



Macintosh PC Exchange

Display DOS disks on your desktop just like Mac disks. Subdirectories on the disk appear as folders and data files as documents. Format 3.5" low density disks in 720K DOS format, and 3.5" high density disks in 1.44MB DOS format. You can open, change, and save documents just like they were Mac files.

Apple Corporation

4609 PC Exchange $69.



System 7.1

New! Check out the new features. A new Fonts folder will resolve font ID conflicts automatically. Complex character sets such as Japanese are now supported by World Script. Also includes all the fixes now in the System 7 Tune-Up extensions.

Apple Corporation

5255 System 7.1 Personal Upgrade $98.
5254 Group Upgrade $278.

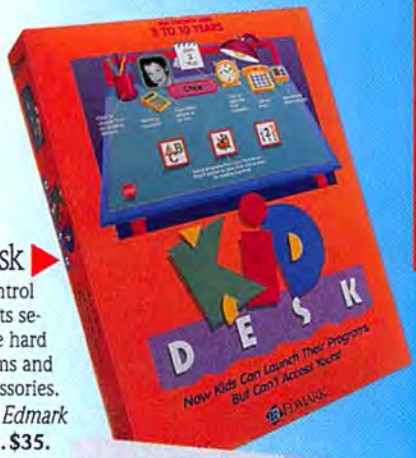


WriteNow Workshop Bundle

A collection of 4 award-winning packages designed to improve your writing. Includes WriteNow 3.0, the fastest & easiest Macintosh word processor. WriteNow's size and speed make it the best choice for the Classic, LC, and PowerBook. Bundle includes American Heritage Dictionary, Correct Quotes, and Grammatik Mac for FREE! ($500 Value)

T-Maker ○

5308 WriteNow Workshop Bundle..... $139.
5309 Competitive Upgrade – WriteNow WorkshopBundle..... $69.



KidDesk

KidDesk was designed by early childhood experts to give kids creative control over their computing environment – without putting yours at risk. Parents select which programs appear on KidDesk from those installed on the hard drive. Then even young children can launch their own software programs and learn by playing with the KidDesk accessories.

Edmark

5182 KidDesk $35.

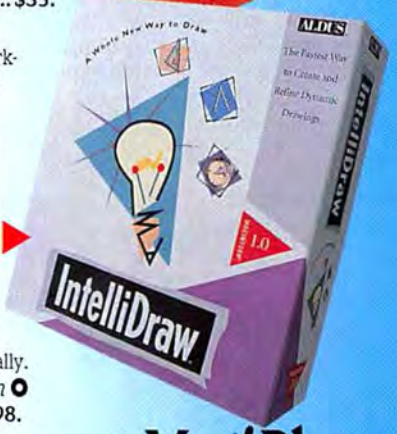


Shortlist

Combines the features of multiple productivity tools into one remarkably easy-to-use program! Time-management, phone dialing, mail-merging, and much more. Your data becomes more useful and accessible. Power-saving features allow 50% longer battery life - perfect for PowerBooks!

Brainchild Corporation ○

4901 Shortlist $98.



IntelliDraw

IntelliDraw is an extraordinary new drawing program with intelligent features that give you an easy new way to visually experiment, refine, and draw your ideas. Visual "what–if" – innovative smart tools link graphics in your drawing so they respond to changes automatically.

Aldus Corporation ○

4771 IntelliDraw $198.

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WorldLink

Dial up the Internet from your Mac without a dedicated line! You don't need Unix with WorldLink . You'll have access to over 13 million people and five different e-mail services – AppleLink, Compuserve, America On Line, The Well, and all the resources Internet has to offer.

InterCon

5195 WorldLink $26.



NetVANTAGE II

Plan your network right. NetVANTAGE II is the only software available that allows you to evaluate proposed network configurations by building an on-screen "virtual network" and then "running" that network. You'll see user-perceived performance times, network bottlenecks, underutilized resources, and serious configuration errors before they happen.

Eclectic Software

5164 NetVANTAGE II $798.

MagicNet 4 Port Thin Ethernet Repeater

Hub your Macs on Thin Ethernet for half the cost of other repeaters. You'll save time when it comes to trouble shooting because each port has a signal light to show you where the problem lies. No more checking each connection on your backboned network.

Tutankhamon Electronics ○

5240 MagicNet 4 PORT Thin Ethernet Repeater $448.



COPYright

COPYright is a transparent utility that completely replaces the Finder's copy functions. Copy files and folders in the background while still performing all Finder functions including launching applications and deleting files. COPYright also permits you to simultaneously copy multiple files to multiple destinations.

CSG Technologies

5147 COPYright $29.

5253 COPYright Pro $49.



Universal PowerCache

When you feel the need for speed, the award-winning PowerCache gives you the best combination of blazing-fast speeds (up to three times faster) and cost-effective prices. More important, it's guaranteed 100% compatible with all your software and hardware while running at full speed.

Daystar ○

Universal PowerCache See Listings under Hardware



MACCON3

Get a 16K RAM Ethernet card for your Mac IIsi with all three types of Ethernet – thick, thin, and 10BASE-T. Includes an FPU socket for an optional math co-processor and a PDS pass-through port for additional PDS cards. Five year warranty.

Asanté ○

3703 MACCON3 $248.



TurboPS/400P

The TurboPS/400P produces brilliant 400 by 400 dpi – almost twice the resolution of standard 300 dpi laser printers. Add to that Image Enhancement Technology to smooth characters, sharpen curves and angles, and eliminate jagged lines. It's ideal for the desktop publisher or business graphics user.

NewGen Systems

5259 TurboPS/400P $1898.



Dual Page Mono Display

Perfect for multitasking or any job that's easier with more screen space – spreadsheets, desktop publishing , text, and graphics. This 19" two-page display provides 1024 x 828 screen resolution at 74 dpi, a 75 Hz refresh rate, and "Apple-standard" P104 phosphor.

Lapis Technology ○

4700 Dual Page Mono Display $698.



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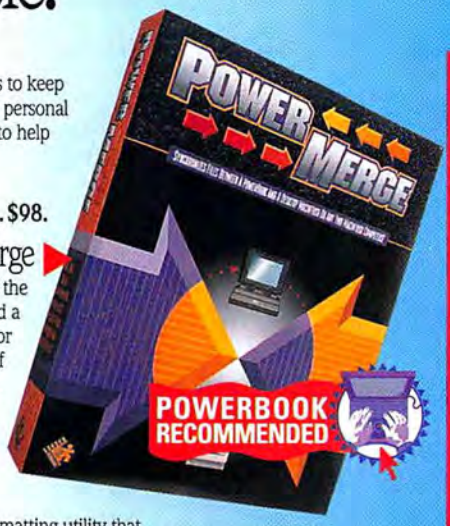


DateBook combines calendar, scheduling, alarms, and to-do lists to keep track of all your daily activities. TouchBASE keeps all of your personal contacts at your fingertips. They work separately or together to help you manage your time and your contacts.

After Hours

5002 DateBook & TouchBASE Bundle $98.

PowerMerge



Finally, a simple and automatic way to keep track of the latest version of your files when you use a PowerBook and a desktop Mac! Select an unlimited number of files, folders, or disks to be maintained and synchronized. Conflict notification if changes have been made to files on both Macs since updating.

Leader Technologies ○

5010 PowerMerge $79.

Disk Café



If you use drives from different manufacturers, you need to format them all with the same utility. Disk Café is a complete storage formatting utility that works with nearly every drive available. So it can prevent compatibility problems including data loss. And its advanced diagnostic tools detect and repair disk defects.

Bering Industries

5121 Disk Café $45.

PowerBook Memory



Your actual memory requirements can easily be twice what the PowerBook provides. Newer Technology specializes in low power consumption PowerBook memory with a full line of RAM upgrade cards (even for the new PowerBooks) that are easy to install. Call for pricing on the complete line of Newer PowerBook memory for old and new PowerBooks.

5310 PowerBook 140/170 Psuedo-Static 6MB $318

5311 PowerBook 160/180 DRAM 6MB $428

Berlitz Interpreter

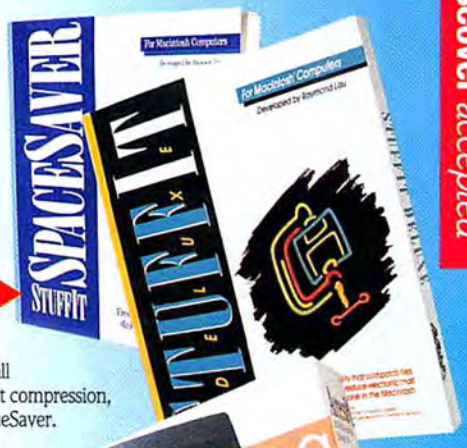


Based on the popular dictionaries, the Berlitz Interpreter provides quick and accurate translations for anyone who encounters foreign words in correspondence, literature, or language studies. This word-for-word translation program allows you to instantly translate individual words between five major languages simultaneously: English, Spanish, French, German, and Italian.

Microlytics

5231 Berlitz Interpreter $35.

StuffIt Space Saver/StuffIt Deluxe 3.0



StuffIt SpaceSaver provides complete on-the-fly compression. Increases disk space (with lightning speed) without effort on your part.

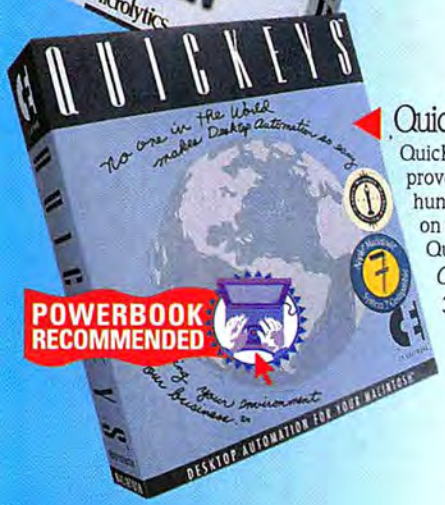
StuffIt Deluxe is the most efficient compression product available. Solves all your compression needs, from archiving to transparent compression, and includes StuffIt SpaceSaver.

Aladdin Systems ○

4971 Stuffit Deluxe $75.

4969 Stuffit SpaceSaver $34.

QuicKeys 2.1

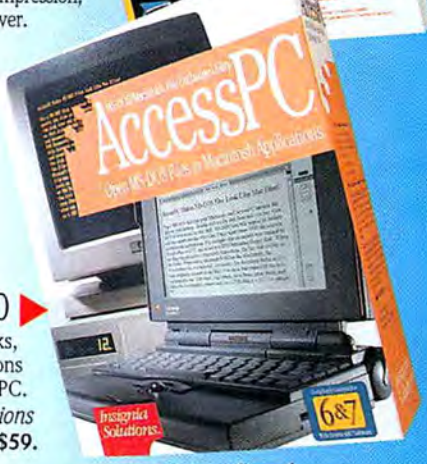


QuicKeys is the ultimate desktop automation tool, designed to improve your desktop environment. It's easy for you to create and use hundreds of time-saving shortcuts. Any repetitive task you perform on your Mac can be done more easily and more consistently with QuicKeys.

CE Software ○

3388 QuicKeys 2.1 $89.

AccessPC 2.0



Just pop any DOS 3.5" disk in your drive and in a couple of clicks, you see Mac files. Edit, copy, save, and print in Mac applications and then return the file back to a PC.

Insignia Solutions

4693 AccessPC 2.0 $59.

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Songworks

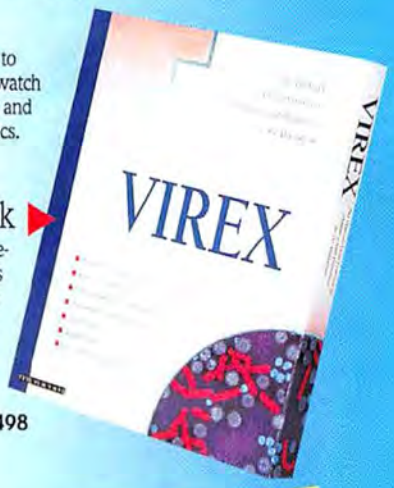


Compose music the easy way. Songworks not only prints your songs, it helps you to compose them. Play a tune on the computer keys or a MIDI keyboard, and watch Songworks handle the notation. It can suggest chords, generate tune ideas, and transpose, play, and print your song with melody, chords, symbols, and lyrics.

Ars Nova ○

❼ 5153 Songworks$68.

Virex 4.0/single user & 10 pak



Virex detects and repairs files infected by all known Mac viruses. Then it prevents infection by continuously monitoring files and performing instantaneous repairs. It also keeps your network virus free with scheduled virus scans. Virex is updated frequently to combat new viruses, and all registered users receive one free update.

Microcom ○

5234 Virex 4.0/single user.....$72.

5235 Virex 4.0 10 Pak$498

The Miracle Piano Teaching System

The first keyboard that teaches you how to play it! Makes learning even the basics a pleasure. Professional keyboard with 49 standard-sized velocity-sensitive keys, 128 digitized instruments and sounds, with full MIDI compatibility. Includes hundreds of songs and lessons, and full orchestral accompaniment.

The Software Toolworks

4072 The Miracle Piano Teaching System.....Call.

Act! for the Mac



This unique, integrated contact and calendar management solution handles your hectic schedule – automatically. Schedules calls, meetings, and to-do's. Generates a variety of written correspondence. Automatically and intuitively remembers every detail about each contact and activity past, present, and future. Also available for Windows!

Contact Software ○

4970 Act! for the Mac.....$244.

5273 Act! for Windows.....$258.

Series 1 Photography Filters



Series 1 Photography Filters are software filters for Photoshop that emulate 35mm camera optical filters. Now you can generate optical effects other than the painterly effects now available. These filters are perfect for both the graphic artist and the photographer creating ads, brochures, advertising, and video presentations.

Andromeda Software

5161 Series 1 Photography Filters$81.

macINTERCOMM



The first and only telecommunications program with true multitasking that offers completely invisible file transfers. With a scripting language of unprecedented power, full protocols, and terminal emulation, you'll agree that macINTERCOMM defines the new standard in telecommunications. Includes a SmartDial feature for traveling users and many more features.

Mercury Systems Inc. ○

5111 macINTERCOMM$124.

Algebra I Homework Tutor



"The best algebra tutorial program I have ever seen." (*Macworld*, 4-91) This program can generate problems or take problems from a student's own text book. Students are checked on every step toward the solution and can request a series of increasingly more specific hints when they have trouble.

Missing Link ○

5150 Algebra I Homework Tutor.....$49.

Quicktel V.32bis FAXModem



The Quicktel 14,400 bps send/receive fax with 14,400 bps data modem combines speed with the quality and styling that wins raves. It includes CCITT V.32bis, V.42bis, and MNP 5. Speed through large files at rates from 14,400 to 57,600 bps when connected to a compatible modem. Lifetime warranty.

Logicode

4176 Quicktel V.32bisFAX/Modem$328.

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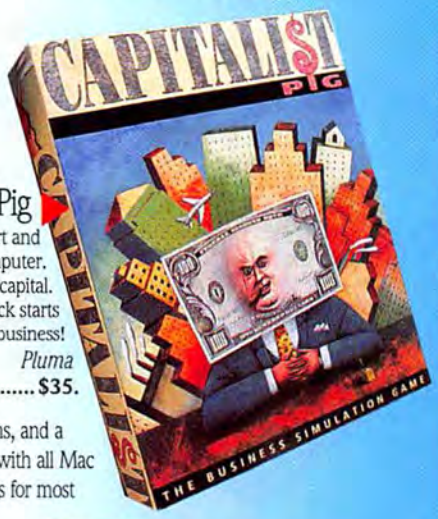


Pax Imperia

Experience a universe of adventure and conquest. Rule an expanding empire while pursuing diplomatic relations with other emperors in neighboring star systems. Race for technological advancement and planetary discovery. Go where no Mac has gone before!

Changeling Software

4992 Pax Imperia $34.



Capitalist Pig

New! Thought-provoking business simulation that lets you start and run a business in the privacy and saftey of your own computer. Choose your company name, stock logo, product, and source of capital. Then set your business, financial, and marketing plans – the clock starts ticking, and you're in business!

Pluma

4640 Capitalist Pig $35.



MouseStick II

The new MouseStick II has optical control, five programmable buttons, and a padded handle with adjustable tension for unbeatable control. Works with all Mac games, even those with only keyboard control. Includes custom settings for most popular games.

Advanced Gravis ○

5079 MouseStick II $58.



Aesopolis

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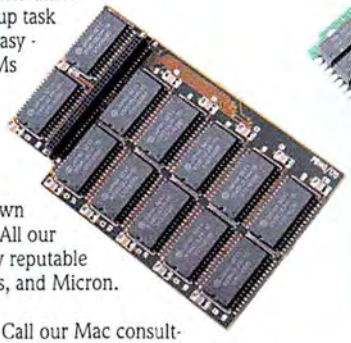
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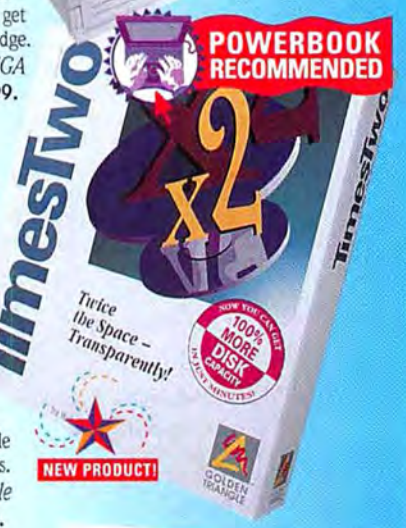


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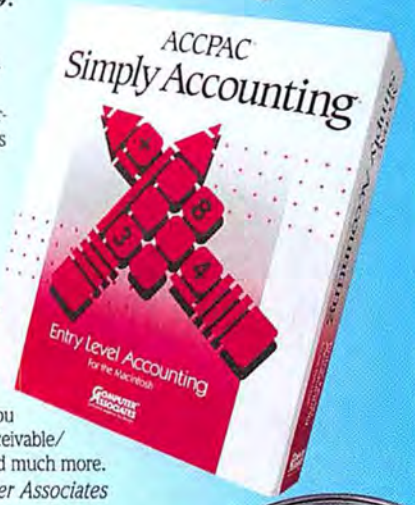
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Magic 256MB REM MOST Optical*	$1699
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Magic 256/128MB 3.5" Cartridges	$99/$59

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Magic 45R/88R SyQuest Drive**	$449/$499
SyQuest 45 & 88 Cartridges	$69/$119

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Magic Toshiba CD-ROM (XM3301)	$549
Magic NEC CD-ROM (CDR74)	$699

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Magic SCSI II & Mirror Card	$299
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2400bps modem. 100% Hayes compatible $69

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2400bps modem with compression to 9600bps. Hardware V.42bis & MNP5 $139

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9600bps modem with compression to 38400bps. Hardware V.32/V.42bis & MNP5 $199

MAGIC VX V.32BIS MODEM

14400bps modem with compression to 57600bps. Hardware V.32bis/V.42bis & MNP5. Includes software and cable $259



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ADVANCED V.42BIS, V.32BIS & MNP 5 ERROR CHECKING & DATA COMPRESSION CAPABILITIES

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MAGIC PERFORMANCE UPGRADES FOR THE MAC LC, IISI, IICI, CLASSIC II & SCSI



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RAILGUN 030 PRO SYSTEM

*030 Accelerators with Built-in Video Output, 68882 Math CoProcessor, PMMU, & Panasonic Display for your Macintosh SE, Plus, or Classic **

System Monitor	19"	15"
16MHz RailGun PRO	$899	$699
25MHz RailGun PRO	$999	$849
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*Add $99 for Classic or Plus Version
** 33MHz version includes Virtual 3.0

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- Magic Math Classic II CoProcessor $59
- Magic IIsi Dual Slot Card with FPU $99
- Magic Cache IIci / IIsi 64k $169

RAILGUN™ 030 SYSTEM V.S. MOBIUS 030

HARDWARE FEATURES	RAILGUN 030 PRO SYSTEM WITH 19" DISPLAY	MOBIUS 030 SYSTEM WITH 19" DISPLAY
CPU SUPPORT	SE, CLASSIC, PLUS	SE, CLASSIC
PROCESSOR	25MHz MOTOROLA 68030	25MHz MOTOROLA EC68030
MATH FPU	68882 BUILT-IN	NOT INCLUDED
PMMU	BUILT INTO 68030	NOT INCLUDED
VIDEO PATH	32-BIT	16-BIT
VIDEO CLOCK	16, 25, 33, & 40MHz	8MHz
MONITOR RES.	1152 x 876	1024 x 768
VIDEO SUPPORT	ALL 3RD PARTIES	ONLY MOBIUS DISPLAYS
VIRTUAL RAM	USING *VIRTUAL 3.0*	NOT AVAILABLE
RAM SUPPORT	UP TO 16MB	UP TO 4MB
BASE PRICE	$999	$1099



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MAGIC MEMORY

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MACINTOSH RAM

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4MB Classic Upgrade	$99
LC VRAM	$69
Quadra VRAM	$29

1MB TI RAM $49
2MB NEC $159

PRINTER RAM

GCC PLP II/S 1MB	$49
LZR960/Realtech/Quickor 8MB Kit	$499
NEC Silentwriter 2 M90 2MB Upgrade	$249
NEC Silentwriter Model 95 2MB	$159
QMS PS-410/815 4MB Upgrade	$239/$349
TI 1MB RAM Upgrade	$49
TI Turbo 4MB RAM Upgrade	$399



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ClubMac 88mb	SQ5110 Actual MAC Capacity: 84mb	$509
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ClubMac Dual 88mb		$919
ClubMac Dual 44mb & 88mb*		$889
Internal 44mb for Quadra 900 / 950		$389
Internal 88mb for Quadra 900 / 950		$499
44mb Cartridge	(10 pack-$62 each)	$64
88mb Cartridge	(10 pack-$96 each)	$99

SyQuest Drives include a TWO Year Warranty, one cartridge & necessary cables, SCSI Director™ v.2.4 Formatting Utility. * Includes (1) 44mb & (1) 88mb cartridge • SyQuest Cartridges carry a ONE Year Warranty.

NOW AVAILABLE SyQuest Drives for Quadra 900/950

NEW!



New ELS Series

Quantum

Unformatted Capacity	Model	Product Description		Actual MAC Capacity	Internal	External
42mb	ELS42	3.5" Low Profile	19ms	40mb	**$185**	**$245**
52mb	LPS50	3.5" Low Profile	9ms	49mb	**$209**	**$269**
80mb	Go•Drive	2.5" Low Profile	9ms	80mb	**$329**	**$429**
85mb	ELS85	3.5" Low Profile	17ms	82mb	**$269**	**$329**
105mb	LPS105	3.5" Low Profile	9ms	100mb	**$319**	**$329**
120mb	LPS120	3.5" Low Profile	10ms	116mb	**$349**	**$409**
120mb	Go•Drive	2.5" Low Profile	9ms	120mb	**$459**	**$559**
127mb	ELS127	3.5" Low Profile	19ms	124mb	**$329**	**$389**
170mb	ELS170	3.5" Low Profile	19ms	160mb	**$385**	**$445**
240mb	LPS240	3.5" Low Profile	10ms	234mb	**$629**	**$689**
425mb	PRO425	3.5" Half Height	8ms	406mb	**$899**	**$959**

ELS drives have 32K cache, low power consumption, MTBF of 250,000 hrs and TWO Year Warranty. **LPS** drives have 64K - 256K cache, MTBF of 250,000 hrs, and TWO Year Warranty. **PRO** drives have 256K cache, MTBF of 150,000 hrs, and TWO Year Warranty. **Go•Drives** have 32K cache, low power consumption, MTBF of 150,000 hrs, and ONE Year Warranty.

5 YEAR WARRANTY

FUJITSU

Unbeatable Quality and Performance

Unformatted Capacity	Model	Product Description		Actual MAC Capacity	Internal	External
425mb	M2623SA	3.5" Half Height	9ms	405mb	**$969**	**$1029**
520mb	M2624SA	3.5" Half Height	9ms	496mb	**$1035**	**$1095**
1.2GIG	M2266	5.25" Full Height	14.5ms	1029mb	**$1649**	**$1749**

Fujitsu 3.5" high performance SCSI disk drives feature:
• 10MB/s data transfer rate • 6.82 ms ave. latency • 240 KB read-ahead cache buffer
Fujitsu 5.25" high performance SCSI Winchesters disk drives feature:
• Embedded SCSI interface • Up to14.5 ms positioning time • Up to 4.8 MB/sec SCSI data transfer rate

Featuring ... the Elite Series

Seagate

Unformatted Capacity	Model	Product Description		Actual MAC Capacity	Internal	External
248mb	ST3283	3.5" Low Profile	12ms	235mb	**$659**	**$719**
420mb	ST1480N	3.5" Half Height	14ms	406mb	**$1059**	**$1119**
525mb	ST1581N	3.5" Half Height	14ms	500mb	**$1179**	**$1239**
1.2GIG	ST11200N	3.5" Half Height	10.5ms	1000mb	**$2119**	**$2179**
320mb	ST4385N	5.25" Full Ht W-R	10.7ms	315mb	**$1249**	**$1349**
645mb	ST4766N	5.25" Full Ht W-6	15.5ms	632mb	**$1285**	**$1385**
645mb	ST4767N	5.25" Full Ht W-R II	11.9ms	634mb	**$1529**	**$1629**
1.2GIG	ST41200N	5.25" Full Ht W-7	15ms	989mb	**$1699**	**$1799**
1.6GIG	ST41651N	5.25" Full Ht W-8	15ms	1350mb	**$2029**	**$2129**
2.1GIG	ST42100N	5.25" Full Ht W-9	12.9	1900mb	**$2949**	**$3049**
1.6GIG	ST41600N	5.25" Full Ht **Elite-1**	11.5ms	1307mb	**$2399**	**$2499**
2.4GIG	ST42400N	5.25" Full Ht **Elite-2**	11ms	2050mb	**$3129**	**$3229**
3.4GIG	ST43400N	5.25" Full Ht **Elite-3**	11ms	2750mb	**$4399**	**$4499**

Seagate Drives include a ONE Year Warranty.

Maxtor®

Unformatted Capacity	Model	Product Description		Actual MAC Capacity	Internal	External
120mb	7120XT	3.5" Low Profile	15ms	121mb	**$335**	**$395**
207mb	7213	3.5" Low Profile	15ms	202mb	**$489**	**$549**
330mb	LXT-340	3.5" Half Height	15ms	324mb	**$749**	**$809**
535mb	LXT-535	3.5" Low Profile	12ms	510mb	**$1099**	**$1159**
645mb	XT-8760S	5.25" Full Height	16.5ms	639mb	**$1239**	**$1339**
1.2GIG	PO-12S	5.25" Full Height	13ms	997mb	**$1575**	**$1675**
1.7GIG	PO-17S	5.25" Full Height	13ms	1433mb	**$1845**	**$1945**

Maxtor 3.5" Drives include a ONE Year Warranty. Maxtor 5.25" Drives include a TWO Year Warranty.

Call for more information

ClubMac Optical Drives

Model		Capacity	Description	Seek	Externa
CMO-OD3000	Teac	128mb	3.5" Half Ht	45ms	**$1179**
CMO-LF3004	Panasonic	128mb	3.5" Half Ht	45ms	**$1169**
CMO-3100E	Ricoh	128mb	3.5" Half Ht	45ms	**$1249**
CMO-3051E	Ricoh	594/652mb	5.25" Full Ht	28ms	**$2695**
CMO-5030E2	Ricoh	594/652mb	5.25" Full Ht	66.7ms	**$2149**
128mb Cartridge		3.5" Single Sided			**$39**
594/652mb Cartridge		5.25" - 512/1024 bytes/sec			**$99**

All ClubMac Opticals include ONE cartridge and ONE Year Warranty.

ClubMac TAPE BACKUP Systems

Capacity	Model	Description	Media	Access Time	External
155mb	Teac MT2ST/N50	Analog	CT600N	5-7 MB/s	**$489**
600mb	Teac MT2ST/F50	Analog	CT600F	7-10MB/s	**$699**
2.0GIG	ARDAT	DAT, DDS	4mm	10-15 MB/s	**$1249**
2.0GIG	WangDAT 1300XL	DAT, DDS	4mm	10-15 MB/s	**$1329**
3-5GIG	WangDAT 3200	DAT, DDS-DC	4mm	10-15 MB/s	**$1549**
2.0GIG	HP 35470A	DAT, DDS	4mm	10-15 MB/s	**$1389**
3-5GIG	HP 35480A	DAT, DDS-DC	4mm	10-15 MB/s	**$1819**
2.2GIG	Exabyte EXB-8200	Digital/Helical	8mm	10-15 MB/s	**$1949**
5.0GIG	Exabyte EXB-8500	Digital/Helical	8mm	10-15 MB/s	**$3229**

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PowerCache (Classic, SE, LC, SE/30, II, IIx, IIcx, IIsi, IIci)

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16 MHz PowerCache	$399	$459
33 MHz PowerCache	$539	$659
40 MHz PowerCache	$749	$909
50 MHz PowerCache	$1079	$1319
Equalizer LC	$169	$239
PowerCache Adapter	$40	

* Cache Adapter not included

Cache Cards

FastCache IIsi	$279
FastCache IIsi with 68882	$349
FastCache IIci	$215
FastCache 040 (128K - Q700/900)	$259
FastCache 040 (128K - Q700/900/950)	$399

Expansion Boards for Mac LC & IIsi

DualPort IIsi	$165
PowerMath LC	$115

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MACCON+ 64K Thick/Thin or Thick/10BaseT	$159
MACCON 3 64K Thick/Thin/10BaseT (Most MACs)	$209
Friendly Net Adapter Thick or Thin or 10BaseT	$79
EN/SC10T SCSI Ethernet with 10BaseT	$249
EN/SC10TPB SCSI Ethernet with 10BaseT for PowerBooks	$309
EN/SC SCSI Ethernet w/ Thick,Thin,10BaseT	$349
EN/SCPB SCSI Ethernet w/ Thick,Thin,10BaseT for PowerBooks	$285
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10THub/8 - 8port 10BaseT Hub	$249
AH1012 - 12port Smart Hub (Upgradable to SNMP)	$825
AH1701 - 12port Smart Hub with SNMP	$949
AH1702 - AH1012 W/Asante VIEW SW	$949
AH1704 - AH1701 W/Asante VIEW & SNMP	$1269

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PowerBook 140/170

2MB Memory Module	$117
4MB Memory Module	$195
6MB Memory Module	$229

Quadra 950

16mb Module	$499
256 VRAM	$35

Macintosh Memory

1mb X 8- 80ns	$28
2mb x 8 - 80ns	$64
4mb X 8 - 80ns	$99
16mb X 8 - 80ns	$479

Mac IIfx

1mb X 8 - 80ns	$30
4mb X 8 - 80ns	$122
16mb X 8 - 80ns	$549

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Telebit Worldblazer $669
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Call ClubMac for more Modem products

PSI

ComStation1 (24/96/48 S/R fax modem)	$159
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PowerPort Bronze (24/96 S/R fax modem)	$215
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PowerPort Gold (14,400 S/R fax modem)	$595
TelePort Bronze/Silver/Gold	$199 / 349 / 435

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SuperMatch 17" Multimode Color	$1089
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Platinum 20 Full-Page	$929

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Spigot and Sound NuBus	$489
Spigot and Sound Pro	$1179
ThunderStorm	$845

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Thunder/24	$2345
Thunder/8	$1175
Spectrum/24 Series III	$845
Spectrum/24	$755
Spectrum/24 Accelerator	$419
Spectrum/8•24 PDQ	$829
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RasterOps 24MxTV	$1699

Graphic Displays

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20T MultiScan Trinitron (2075M)	$2699

Color Display Adapters

RasterOps 24XLi	$1939
RasterOps PaintBoard 24	$1549
RasterOps PaintBoard Li	$829
RasterOps 8XLi	$929
RasterOps 8XL	$465

21" Mono/Gray Scale (2110)	$999
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NEC



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• Adobe PostScript Level 2 • Auto Interface Monitoring • 300 dpi
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Mac FG 8X Interface	$719
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CDR-74 Gallery	$629
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* Includes Mac Adapter & TWO Year Warranty

radius

Color Pivot/LE Bundle

Limited Time Offer $799

FREE Radius Interface Card



The ClubMac Bundle combines the low cost 15" COLOR full page display and the Color Pivot Interface. The dual orientation mode enables both portrait and landscape document views. Color Pivot Interfaces are required for all configurations. Provides 624 X 832 pixel resolution at 78 dpi, 72 Hz refresh rate provides a flicker free view. Available with NuBus, IIsi, LC and SE/30 Interfaces



Increase the processing speed of the Mac II up to 8 times, allowing a Mac II to exceed Quadra performance



Radius Color Display/21
$1895

Accelerators

Radius Rocket 25i	$1199
Radius Rocket	$1599
Radius Rocket 33	$1999

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VideoVision	$2009
PrecisionColor 8 I/F	$499
PrecisionColor 8X I/F	$729
PrecisionColor 8XJ I/F	$495
PrecisionColor 24X I/F	$1629
PrecisionColor 24XP I/F	$495
PrecisionColor 24XK I/F	$829
Color Pivot I/F	$505
Monochrome Pivot I/F	$249
Two Page Display I/F	$395
PowerView	$499

Radius Displays

Color Display/21	$1895
PrecisionColor DIsplay/20	$2759
PrecisionColor Display/19	$2089
Color Pivot	$1289
Color Pivot/LE w/ Mac I/F	$799
Monochrome Pivot	$699
Full Page DIsplay	$579
Two Page Display/19	$899
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Turbo PS/300p $1239.00



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	Turbo PS/300P	Turbo PS/400P	Apple NTR	QMS PS-410
Memory	2Mb/16Mb	4Mb/16Mb	3Mb/4Mb	2MB/6MB
Pages/Minute	4	4	4	4
Resolution	300 dpi	400 dpi (IET)	300 dpi	300 dpi
Fonts	35	35	35	45
Price	$1,239	$1,699	$1,799	$1,699

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Powerbook Memory Cards



5-year warranty

2Mb	6Mb
$99.00	$279.00

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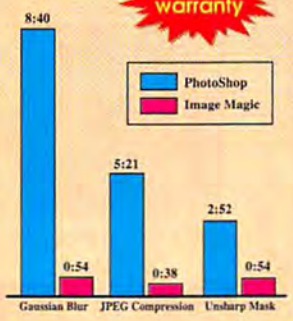
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Digital Signal Processor

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2-year warranty



PDS	NuBus
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Universal PowerCache Family

Universal PowerCache — IIci • LC • IIsi — 33,40,50 Mhz — II • IIx • IIcx • SE/30



33Mhz	40Mhz	50Mhz
$595.00	$795.00	$1165.00

These prices include adapters

Multiple Award-Winning Hardware



30-Day Money Back Guarantee

Lowest Prices — Great Service — Overnight Delivery — 30-Day MBG

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~~$1598.00~~

Like the original Color Pivot, this new 15" display offers portrait and landscape operation, 256 colors, ergonomic design, and a high refresh rate. The Color Pivot/LE comes with a Radius Color Pivot interface for 8-Bit color and provides 832x624 resolution at 76 dpi. Priced very attractively, this display is compatible with the Macintosh Quadra and II families, LC, LC II, and SE/30.

Mac Depot Sepcial Price!
$799.00

Free Video Card Included!

Monitor Comparison Chart

	13" Monitors*	16" monitors*	COLOR PIVOT/LE 15"
Resolution	640x480	832x624	832x624
Orientation	Landscape	Landscape	Portrait/Landscape
Video Card	Optional	Optional	Included
Price	$995.00	$1,999.00	$799.00

*Describes most 13" and 16" monitors.

~~$599.00~~



DirectColor/GX

This affordable 24-Bit (16.8 million colors) display interface card for the 13" AppleColor RGB and compatible monitors provides you with a cost effective way to work with photographic-quality images. In addition to full color capability, DirectColor/GX offers on-board acceleration for 32-Bit QuickDraw operations and is offered in versions that provide NTSC or PAL-rate video output. DirectColor/GX is compatible with the entire Macintosh II family, supporting 640x480 resolution.

EXCLUSIVE!
$299.00

Video Card Comparison Chart

Radius DirectColor/GX	RasterOps 24SX	Supermac Color/Card 24	Apple 8•24GC
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640x480	640x480	640x480	640x480
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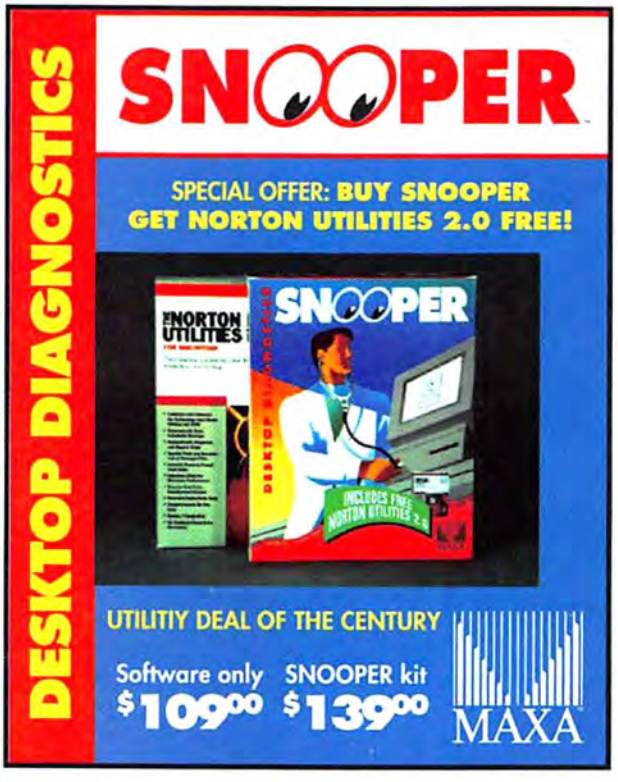
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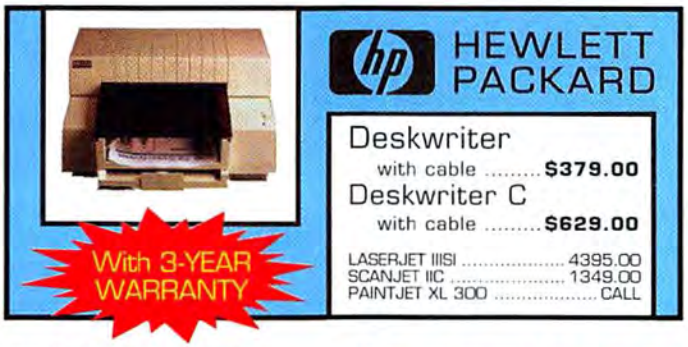
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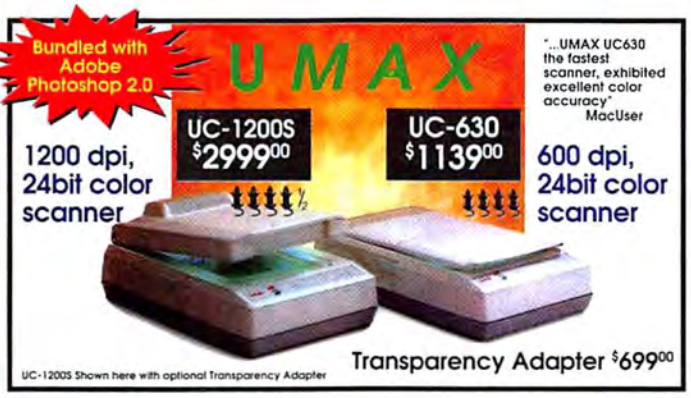
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-DGR 128MB REM, MacUser Magazine, 3.5" Optical Hard Drive Review, July 1992

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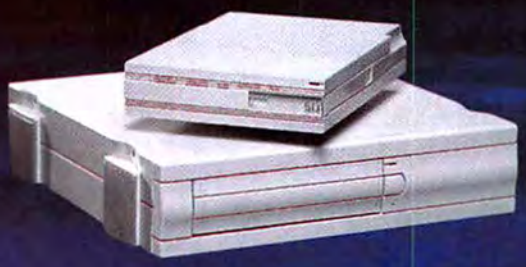
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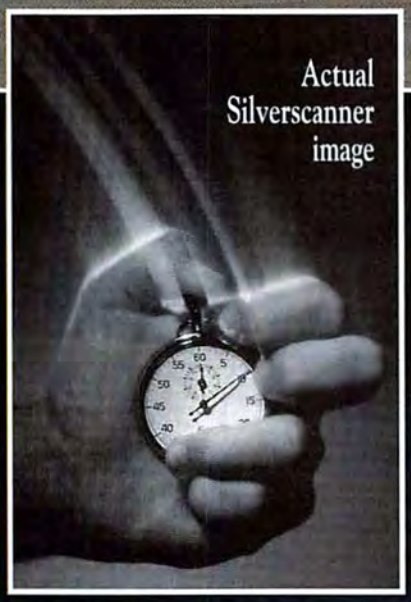


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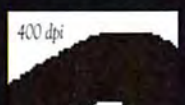




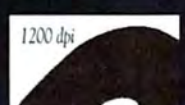
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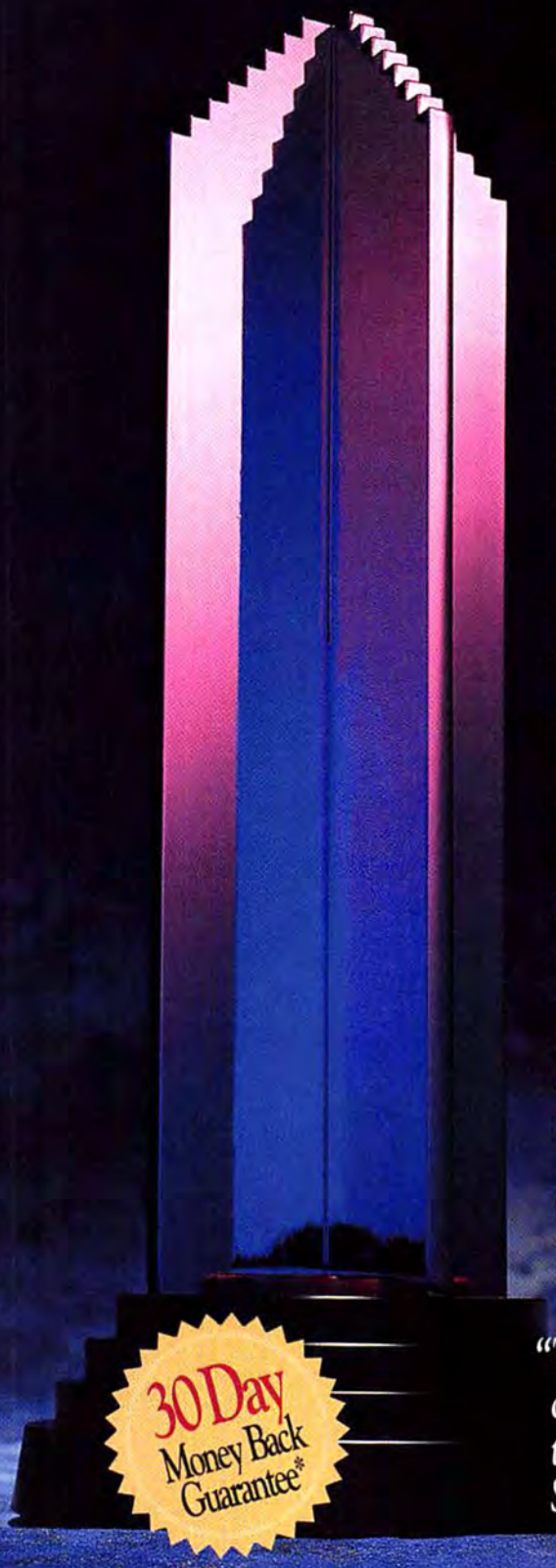
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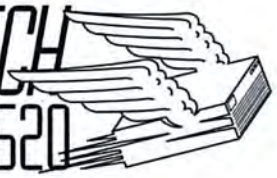


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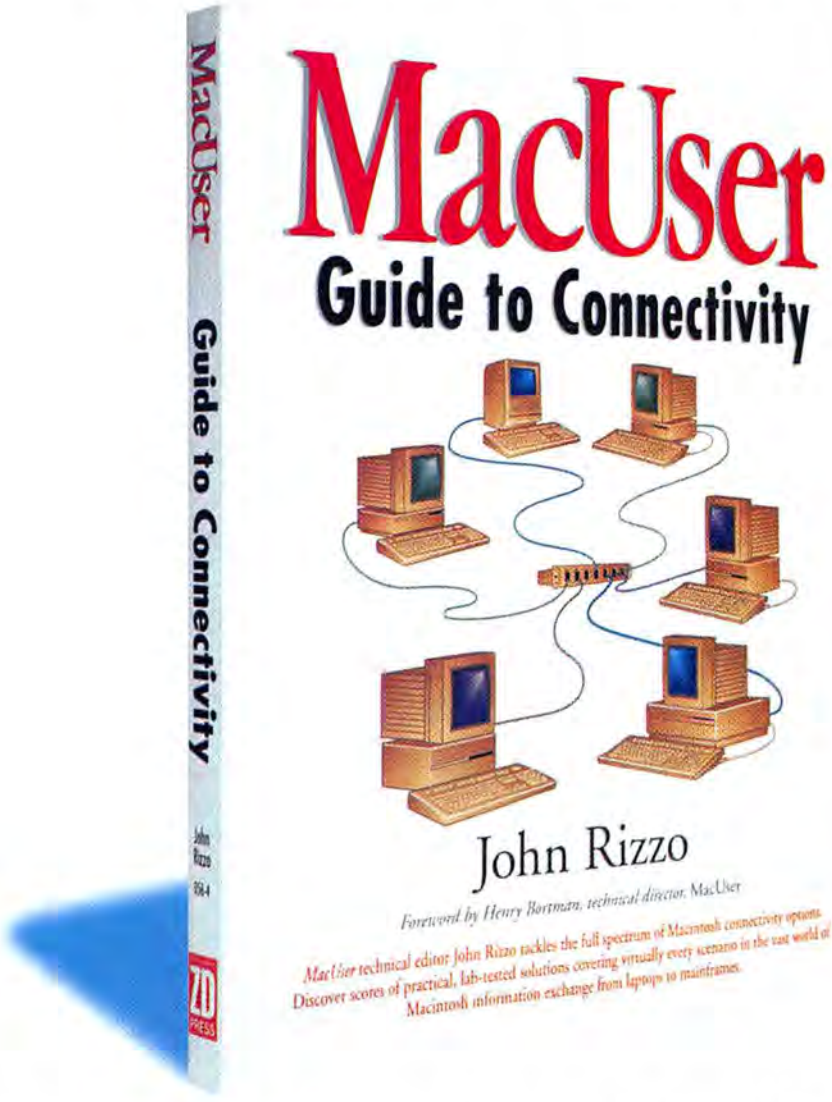
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Input Devices	351		
Insurance		363	373
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Security			
Tape Drives			
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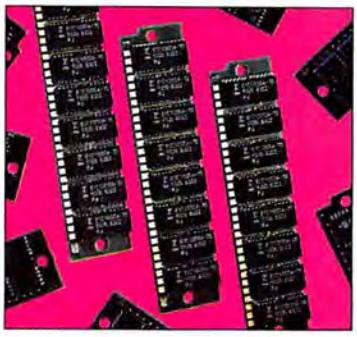
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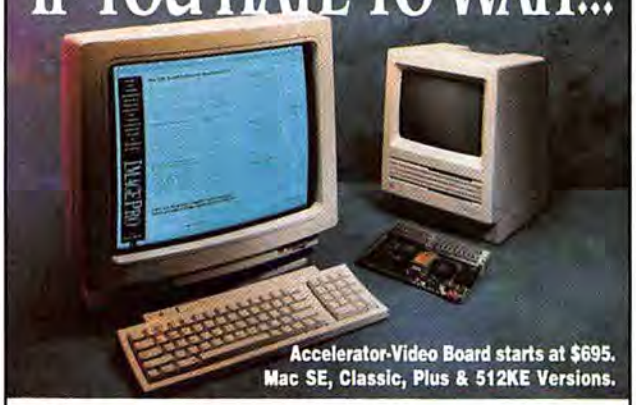
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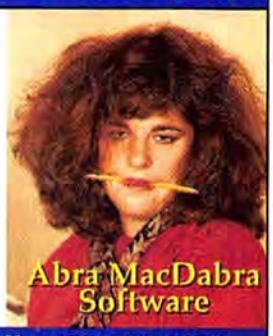
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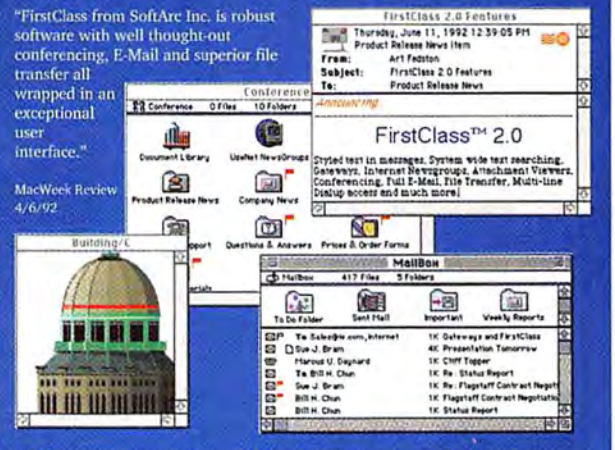
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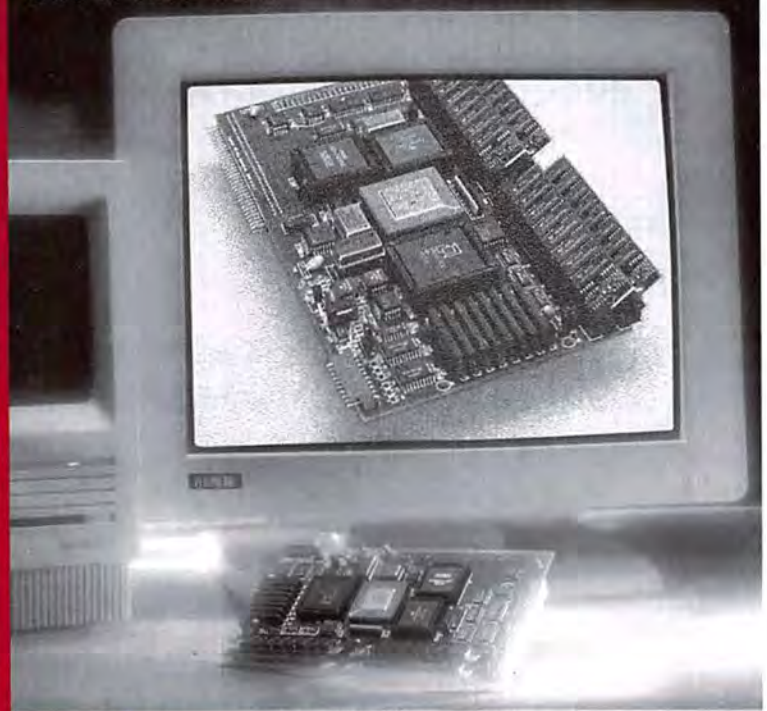
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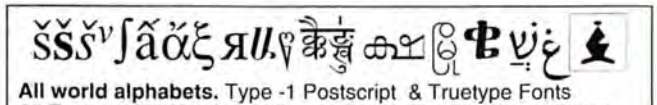
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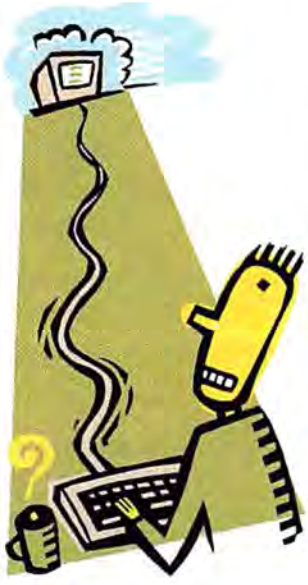
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JOHN C. DVORAK

I Told You So!!!



Ever wonder how know-it-all computer columnists get that way? Here's the secret to making people believe that you know what you're talking about.



This is an awkward time of the year for a columnist. It's the end of summer, but because of deadlines and lead times and whatever, I'm writing a column for the December issue. To make matters worse, there's a presidential election, and the magazine will be on the newsstand about the time of the election, which is about a month before the cover date.

This is a writer's dilemma: How to make a column appear topical during a time of uncertainty and transition. As I write this, Clinton is leading Bush, but that's the same situation Dukakis was in four years ago. What makes this election especially interesting is that Apple CEO John Sculley and a slew of other Silicon Valley executives have jumped the fence to endorse Clinton. I guess the multimillion-dollar salaries these guys are getting aren't enough. They want change too (pun intended).

Anyway, a lot of readers would like to know how a writer handles a long lead time during an election or a time of change. The idea is to make it sound as though what you're writing about — in this case, the election — is in the past, so the information matches the cover date of the magazine. Several techniques are available.

First, I could use a coy writing trick. I could admit that I'm writing before an event (the election) and make it humorous that I don't know what's going to happen. Here's the first paragraph of a wacky Dvorak column on the election:

> How can John Sculley and a slew of other Silicon Valley executives come out and endorse Clinton for President? Now that Bush has won, what do you think the future of Apple will be? Now that Clinton has won, what do you think will happen to Macintosh sales if the economy gets even worse? It was a no-win situation from the beginning.

I'm sure that would get old fast, though. My next option would be to resort to what most writers do and generalize. This would be the start of a column using that technique:

> Now that the elections are over, we can get to the job of making computers. I'm sure the president will do what he said during the campaign and make America No. 1 in technology!

Of course, I'm not such a cornball that I'd ever write a column that sounded like that. Anyway, I could always use the technique of changing the subject and sounding like I knew what happened about the election. That kind of a fake-out would produce something like this:

> It's about time Apple did something about the CD-ROM and incorporated it into the computer itself. Congrats on the new Performa 600 CD! You guys are outta sight! And congrats to the winner of the presidential election! I knew you'd win!

That's pretty lame, but here's a sly version of the same thing:

> So I see Apple has finally wised up and is promoting ease of installation and setup rather than ease of use in its new ad campaigns. Of course, it doesn't help Apple's cause if all the software vendors (including Claris!) are bailing out of the Apple software scene to go into software for Windows, where they will be decimated by Microsoft. Hopefully, now that the presidential race is over, Apple can concentrate on making computers.

Not bad, huh? If that doesn't sound like I wrote it after the election, I can always do something obtuse:

> So Microsoft has been busted by the FTC. It's about time someone did something about the boys in Redmond. They've been riding roughshod over the industry ever since they stuck it to IBM! You have to wonder if it took a presidential election to make this happen!

The joke here is that as of today, I don't know what's going to happen with Microsoft and the FTC. To make this work, I'd have to fudge a bit and write something like this:

> I can't make head or tail out of the whole FTC thing. Would someone explain to me what's happening? Some people say it went Microsoft's way, and some people say it didn't. Maybe the president knows!

Now *that* sounds like something going on at the end of the year and not the end of summer, right? Another trick is to judiciously use quotes to indicate that you're being cynical when all you're really doing is covering up the fact that you don't know anything. How's this look?

> I hope that the "new" president and the "new" Congress can work together better than IBM and Apple have. I hear that the two companies aren't making much headway in this Taligent-Kaleida-Pink whatever-the-heck-it's-called joint venture. The IBMers say it's Apple's fault, and Apple says it's IBM's fault. Maybe the corporate-culture clash is for real!

(Note the use of the exclamation mark at the end of many of these paragraphs. This is one of the columnist's cardinal rules: Always use an exclamation mark when you're bluffing. If you're really unsure, throw in a question mark too.)

You'll find these tricks and a lot more in every December issue of every magazine in the country as writers try to fool the public into believing that their deadline was November 30 rather than September 15. I hate to reveal these trade secrets, but I needed to write something about the "new" president. And was that a great World Series or what?!

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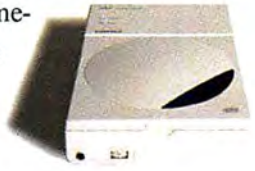
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